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**Publicity and Patents**

No single agency has done more to encourage American enterprise and to promote national prosperity than the United States Patent Office; and the regret is, as *The India Rubber World* recently remarked, that the aegis of so powerful a protector and on which inventors rely so implicitly should so often prove but a flimsy shield.

Almost anything can be patented, but the government gives no absolute protection for the fees paid; nor does it enable an inventor to collect from infringers or adapters any royalties on goods manufactured while his patent application was pending, such liability being incurred only after the final letters are granted.

In a communication, Mr. John F. Robb, LL.B., LL.M., M. P. L., author of "Robb's Patent Essentials," agrees with this publication on the urgent need of improving the patent system in this and other regards. He advises that patent legislation be so amended as to enable a person finally obtaining a patent to collect for the use of his invention prior to the issue of the patent; or to shorten the period of patent pendency, during which time, he points out, bona fide efforts are so often made to market an invention later patented, and, it might be added, when valuable ideas are often stolen by the unscrupulous.

Mr. Bertram G. Work's contentions regarding the Palmer tyres in relation to the Putnam patent, Mr. Robb observes, also serve to emphasize another need; and that is for publication of an invention before the final patent is issued, so that those interested may prevent the grant of a patent that may not be warranted, or have the scope of a patent restricted if justified. The desirability of the publication system has been demonstrated in foreign countries, and it is confidently believed that its adoption in this country would place American patents on a much higher plane of validity.

**The Planter and the Manufacturer**

IT was the stern need of self-preservation that actuated rubber planters, in initiating the much-criticized Stevenson Restriction Act, according to Mr. James Fairbairn, chairman of the directors of the Amalgamated Rubber Estates, Ltd., a large producer of mixed crops in the Far East. He terms the present high price of rubber artificial, as unduly inflated, and a speculator's and not a planter's valuation on this commodity. Were it not for the Act, he says, world stocks, instead of being reduced by 150,000 tons, would have since mounted to 400,000 tons, and had not restriction come to their aid when rubber was selling below production cost, many companies would have been driven into bankruptcy or been forced to sell out to an American "trust" then forming with a quarter of a billion dollars capital.

Answering the claim that the Stevenson plan is inelastic, Mr. Fairbairn contends that the scheme almost automatically conforms itself to the requirements of trade, buyers even having it in their power to increase releases up to 100 or even 120 per cent in order to checkmate price inflation.

There was even a graver reason for the enactment of the Stevenson law. The fact is, Mr. Fairbairn claims, that the restriction scheme was devised not solely for the planters' benefit, but for saving the Federated Malay States from seemingly inescapable bankruptcy with all that implies in international commerce.

On the other hand a British rubber manufacturer writing to the *Financial Times* says:

"Manufacturers are not a composite body; it would be bad for the rubber producer if they were. Which manufacturer ought to have come out for the good of the rest and paid 1s 3d in the May-July quarter, 1924, when he could get all he wanted for 1s?"

"Preserving the world's productive capacity must mean in its fullest sense the preserving of the world's consuming capacity also. To grumble at 1s not being 1s 3d, and yet scoff at the manufacturer (consumer) because he is forced to pay 3s or more, as is the case today, is rather one-sided even for those who pride themselves upon their fair-mindedness."

"There is every reason to balance the restriction scheme if the real boasted motive of restriction is preservation of the industry as a whole."

"What about lessening consumption through high prices—3s, etc.? What about manufacturers standing the strain, facing possible disaster, or coming to a low ebb by this ill-balanced restriction scheme?"

"Sir Eric Geddes, of the Dunlop Company, asks for 'reconsideration' of the scheme, and that is the only way for the Legislature to justify its boast that the real underlying motive is the preservation of the industry as a whole."

Reconsideration does not mean scrapping.

### Synthetic Rubber Possibilities

WITH every upswing in the price of crude the nightmare of planters and the fond dream of consumers—synthetic rubber—seems just ready to materialize, but with every slump it just as strangely fades again into thin air. Even so well informed an observer as Secretary of Commerce Herbert Hoover was for a time so much impressed with the looming rival of real rubber as to expect its early use in American industry, but, the Bureau of Standards having pronounced its manufacture impractical, he now states that manufacturers can hope for little relief from that source. If the rubber industry is to effectively fight the rise in crude, he advises, its best recourse lies in the more extensive use of a material which, though it may have had as many lives as the proverbial feline, is still unexcelled as a substitute for natural rubber,—old, reliable reclaim.

Modern industry worships no fetish. Today's idol may be in tomorrow's scrap heap. Less than a generation ago the natural dye trade had deemed its position impregnable; but a way was found to make more, better, and cheaper colors from coal tar. Petroleum refiners in making kerosene then tried vainly to get rid of a troublesome by-product,—gasoline; but the motor car came and the refuse of the oil industry became its most prized product. History's greatest lesson is that nothing is more certain than change, and the surest thing to happen in rubber is the unexpected. Rubber growing in Ceylon in

the early '90s merely amused a leader of the American rubber trade, but he lives to see even his own company develop a great plantation in the Far East. Now the most astute are the most wary about making rubber predictions.

Possibly rubber raising has a future as well assured as that of coffee cultivation; or, with startling suddenness, it may encounter a chemical competitor that may force even the proud Hevea to struggle with the lowliest African grades for a place in the sun. The economic production of synthetic rubber may now baffle the chemists, but it does not discourage them. They like to amaze the incredulous, and their brilliant achievements warrant their confidence that in the near future they will originate a commercial product that will be not only caoutchouc but also have the minor essentials of good, working rubber.

So eminent an authority as President James F. Norris of the American Chemical Society stated during its recent annual convention that not only is the problem of synthetic rubber being attacked more earnestly than ever, but that its solution seems probable through the more economical production of butyl alcohol, a by-product of corn fermentation. Butyl alcohol has made possible the replacement of car varnish with nitro-cellulose lacquer; and so may its derivative acetone, from which the Germans in war days made isoprene and usable rubber, yet prove indispensable to the rubber trade. Such an accomplishment should be no more marvelous than the conversion of the fluids phenol and formaldehyde into a resin that vies with hard rubber. And even if the corn product were to disappoint us, Dr. Norris reminds us that we still have in crude petroleum a potential base for a limitless supply of rubber.

AN EAST INDIAN SCIENTIST, SIR JAGADIS CHANDRA BOSE, is said to have discovered a mode of stimulating plants and observing their reactions that may revolutionize plant culture and medical treatment. Of course, restricted British rubber growers might not now avail themselves of his aid, but planters elsewhere may induce the botanical wizard to help increase latex secretion while rubber remains high. Perhaps a way might be devised, for instance, whereby Dutch trees could be given such effective shots of a galactagogue that their output would turn British trees green with envy, make the Netherlands plantations fairly flow with milk if not honey, and not only keep crude prices within reason but even avert the seven lean years of shortage that some rubber pessimists prophesy.

BELIEVING THAT HE CAN DO MORE IN DOCTORING humans than tires, a western vulcanizer has become a physician. His experience in cold curing may possibly help him in curing colds.

BUT IF ANY PROVIDE NOT FOR HIS OWN, AND SPECIALLY for those of his own house, he hath denied the faith, and is worse than an infidel.—1 Timothy, 5:8.

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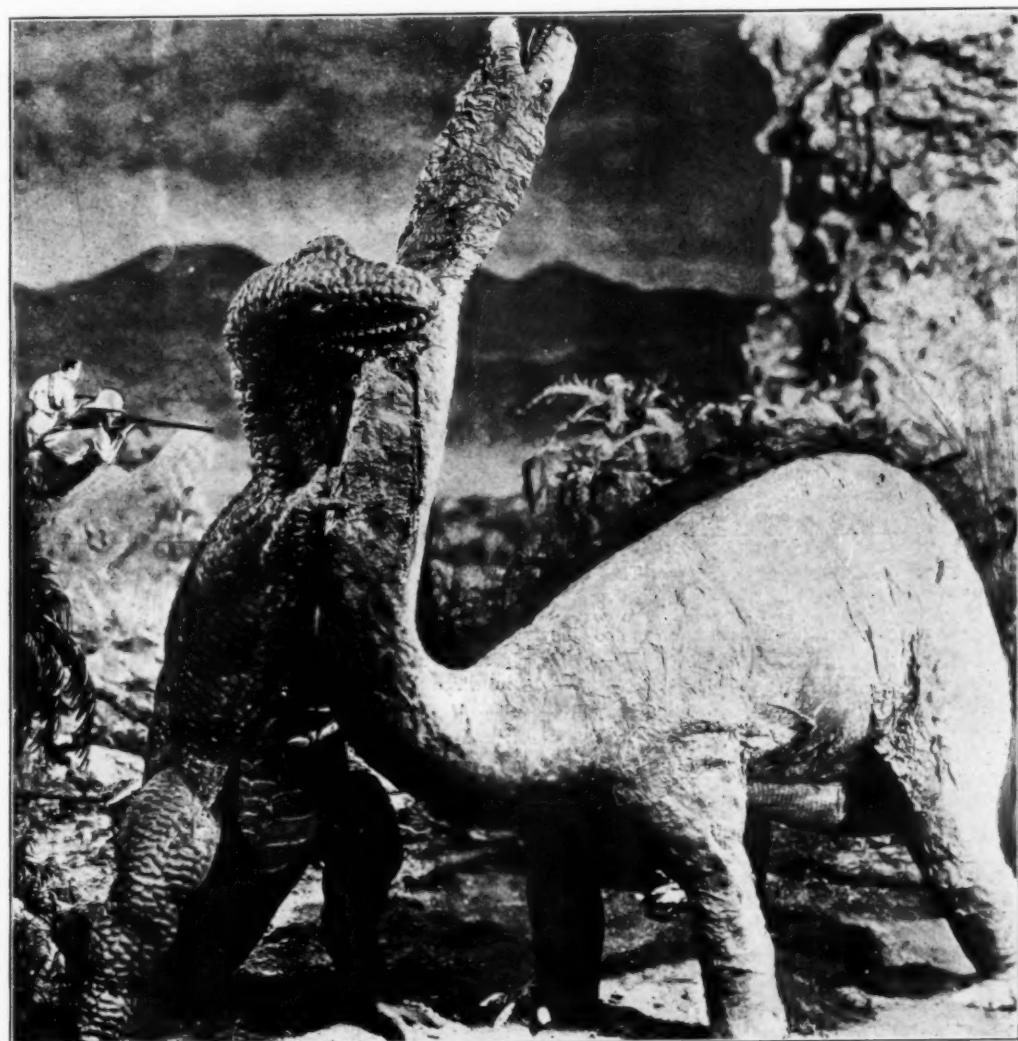
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**IT** takes something very novel and thrilling nowadays to maintain interest throughout an entire motion picture exhibition; but this is achieved by the producers of "The Lost World," a picturization of Sir Arthur Conan Doyle's novel.

Perhaps not even one in a thousand of those who view the picture guesses that an artificer in rubber has made such an

the most skillful technicians employed in the world of make-believe.

For certain effects they are careful to have only colors that screen well, which is not at all difficult of attainment. In the making up of the animals, the compounded stock was first calendered upon frictioned fabric. The rubber surface was then embossed to give it the appearance of the corrugations shown on



A Twenty-Foot Allosaurus Kills a Seventy-Foot Brontosaurus

astonishing spectacle possible; but such is nevertheless the truth. The appearance and the acting of the terrible lizards (dinosauria) and the other huge denizens of the jungle in remote ages could be accomplished only through the medium of rubber; but the manner in which the monsters were produced and put through their paces differs much from that hitherto observed in devising and utilizing rubber articles in the movies. In fact, it brought into play a remarkable amount of ingenuity on the part of some of

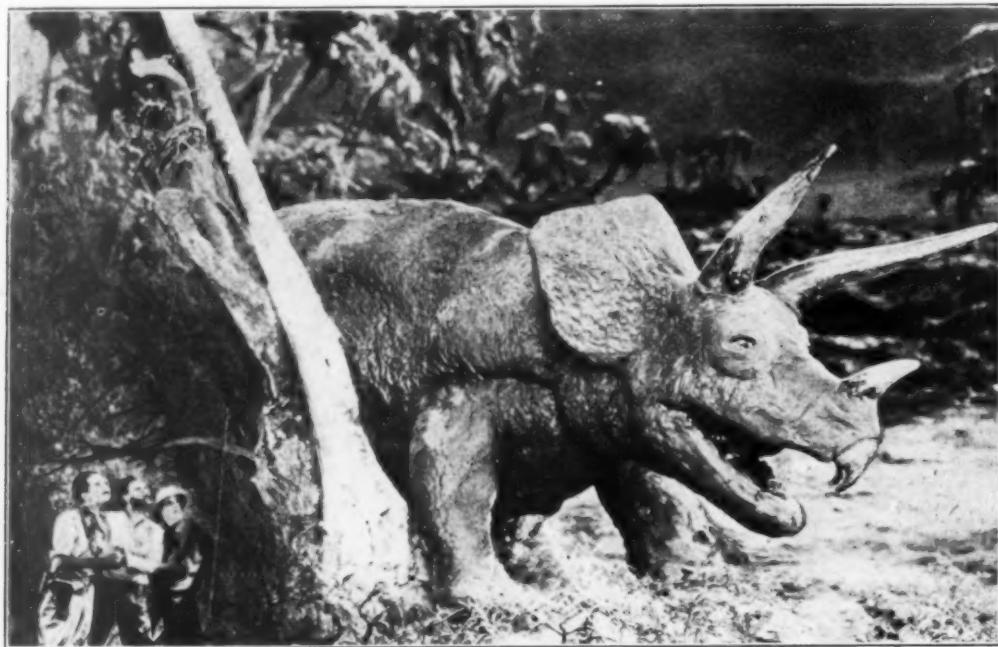
reptilian hides. This was done by an engraved plate in a steam press. For the sake of easy handling, the sheet was semi-vulcanized during the pressing. Patterns are then drafted from the model, the rubber sections skived, cemented, and put together in part, and the curing completed. Legs, necks, and other extraneous parts are made up and cured separately. The various sections are then assembled on the form, with reinforcing strips where needed. The form is then taken out in sections, and the

various wires and tubes inserted, together with filling to prevent collapse.

In certain places rubber sacs filled with red fluid are added to be ruptured in fights. Lungs of rubber that can be inflated with a rubber tube leading from a bellows, producing a realistic heaving effect where "the mightiest creature that ever breathed" lay helpless in a slimy pool. As to the walking, running, munching, dueling, and the other movements, it is partly illusion and partly

ent from the other, but which, when projected on the screen, produce the illusion of lifelike motion. Alone, or in groups, the director and photographer can attitudinize the rubber figures to accomplish startling effects on the screen, the flexible material lending itself admirably to the technician's requirements.

As for the actors, it does not appear to be necessary for them even to know that the rubber animals are used at all. They can assume that animals will figure in the finished picture, and act



The Hooded Triceratops

manipulation like marionettes or the familiar Punch and Judy show figures.

Action, also, for such figures, may be obtained the same way that apparent movement is produced in animated cartoons through the photographing of many hundreds of poses, each slightly differ-

accordingly; for an expert photographer, adept in double exposure work, can so print in pictures of the animals into others in which the actors figure, and so harmonize the whole effect, that only a trained eye can detect the clever blending of the real and unreal.

### Rubber Goods Exports Highest Since 1920

According to statistics prepared by the Department of Commerce, the United States has shipped to foreign countries during the first half of 1925 rubber goods to the value of \$23,857,173. This figure exceeds by more than 20 per cent the estimate, at \$19,648,687, for the corresponding period of 1924, and has also surpassed the value of exports for the same period in any year since the peak year of 1920. The increase is chiefly due to a greater volume of exports, but in a measure is also the result of the higher unit value of the various commodities. It is problematical whether this advance will be permanent, but with improvement in world economic conditions, the American rubber manufacturer will be in a more favorable competitive position.

Exports of pneumatic casings during the six months mentioned amounted to 803,790, value \$9,427,601, the highest points reached being in March, April, and May, with a considerable decline in June, probably due to the confused price situation. The unit value of casings was however higher in June than in any other month

of this period. Argentina represented the leading market for this class of goods, taking 95,287 casings, followed by Great Britain with 77,055. Other good customers were Brazil, Denmark, Mexico, Australia, and Cuba. These countries were also the chief markets for pneumatic tubes. Solid tire exports amounted to 55,040, value \$1,414,918, the principal destinations being the United Kingdom, Australia, Cuba, New Zealand, Japan, and Argentina. Shipments during the period of tire accessories and repair materials amounted to 1,101,159 pounds, value \$464,514.

Latin America represented the leading markets for the 2,346,461 pairs of canvas rubber-soled shoes exported, value \$1,672,977. Shipments during this period of rubber boots totaled 347,784 pairs, value \$845,452, the estimate for rubber shoes being 350,486 pairs, value \$314,328. Exports of rubber soles and heels amounted to 1,572,243 pounds, value \$486,530. Trade in rubber mechanical goods was well maintained, exports of rubber belting consisting of 1,967,171 pounds, value \$1,125,695; rubber hose, 2,627,460 pounds, value \$1,001,693; and packing, 797,361 pounds, value \$362,849.

## Rubber Planting Possibilities in the Philippines

Government Investigators Reach Conclusions Similar to Those of *The India Rubber World* Eight Years Ago—Soil and Climate Ideal—Land Laws a Handicap—Islands Might Ultimately Produce 70,000 Tons of Rubber Yearly

WHEN World War conditions threatened our overseas supply of crude rubber the desirability of a plantation production adequate for American needs and grown under the United States flag became an obvious fact rather than a mere possibility as formerly. It was clear that while this emergency would be temporary it might occur again with damaging effect upon the American rubber industry, and also that such complete foreign control—even by a friendly nation—of an important raw material of which the United States is the principal user constituted a constant economic menace.

### Philippine Possibilities Advanced in 1917

The Editor of *The India Rubber World* had long been an advocate of American grown rubber, and was quick to recognize the Philippines as a promising rubber planting region under the United States flag, whence the product might be brought to America subject to fewer hazards than endangered the shipping lanes of the Atlantic Ocean. During the winter of 1916-17 he spent several months investigating rubber planting conditions in the Philippines. His belief that Mindanao is capable of becoming another Sumatra was published in a series of ten articles beginning in our July, 1917, issue. To them the interested reader is referred for a comprehensive, detailed survey of conditions and possibilities throughout the Philippine Archipelago.

### Similar Government Conclusions Eight Years Later

Now, eight years after the publication of the original *India Rubber World* series of Philippine articles, the investigators of the United States Government conducting the crude rubber survey authorized by the Sixty-seventh Congress have reached similar conclusions which are recorded in a report entitled *Possibilities for Para Rubber Production in the Philippine Islands*, recently published by the Department of Commerce. This report describes the existing small rubber growing industry in the Philippines and discusses the extent to which this industry might be expanded. The investigation was made and the report prepared by C. F. Vance, special agent, A. H. Muzzall, special agent, J. P. Bushnell, assistant trade commissioner, Department of Commerce, and Mark Baldwin, inspector, Soil Survey, Department of Agriculture. The information which follows is a brief abstract of the report.



Five and a Half Year Old Hevea, Basilan

### Present and Potential Areas

There are four small commercial rubber plantations now existent in the Philippines, aggregating 2,890 acres, of which approximately 600 acres are being tapped. Three are on Basilan Island and one in Cotabato Province, Mindanao.

To them may be added an experimental plantation of 10 or 12 acres among the hills in Zamboanga Province, Mindanao, at an elevation of about 1,000 feet. As regards growth of trees and yield of latex the few existing plantations compare favorably with some of the best plantations in the Middle East.

On the three southern islands of Mindanao, Basilan and Jolo, there are located regions comprising more than

1,500,000 acres with favorable climatic conditions within which large areas with suitable soil and topography could be selected for rubber planting. Of this total, 1,400,000 acres are credited to Mindanao, 100,000 acres to Basilan and 20,000 acres to Jolo. Other nearby regions with similar conditions, not covered in this report, would make important additions to this acreage. In Mindanao, especially, the Pará tree was found thriving under such varied conditions, in such dissimilar soils, and at such different elevations (ranging from a few feet to 1,200 feet above sea level) that the areas surveyed are believed to be only a part of the total lands suitable for *Hevea Brasiliensis* cultivation. Much of the land indicated by the accompanying map is within easy reach of water transportation, while some needs access roads. In the more northern islands of the Philippine Archipelago there is danger of damage by typhoons which is not present in the southern areas studied.

### Climate and Soil

Temperature conditions in the Philippines are very similar to those of the Middle East where rubber is being grown successfully, as are also the total rainfall and its distribution throughout the year, though certain localities both in the Middle East and in the Philippines have occasional dry seasons not serious in character. The mean yearly temperature of the southern Philippine islands at or near sea level is about 80 degrees F., like that of the rubber growing regions of the Middle East, and there is little variation in the mean monthly for both regions. The absolute minimum never falls below 60 degrees F. in either

region nor does the absolute maximum rise above 100 degrees F. Rainfall ranges from 73.6 inches in Jolo to 111.6 inches in Bukidnon Province, Mindanao, as compared with 76.7 inches in Sumatra, 93.8 inches in Malaya and 150.8 inches in Ceylon.

Local winds that may do slight damage to Hevea plantations are to be expected in any rubber country, yet the northeast trade winds which blow from October through March seldom reach destructive velocity, while the heavier southwest trades which blow from April through September do no perceptible damage to tree crops like rubber.

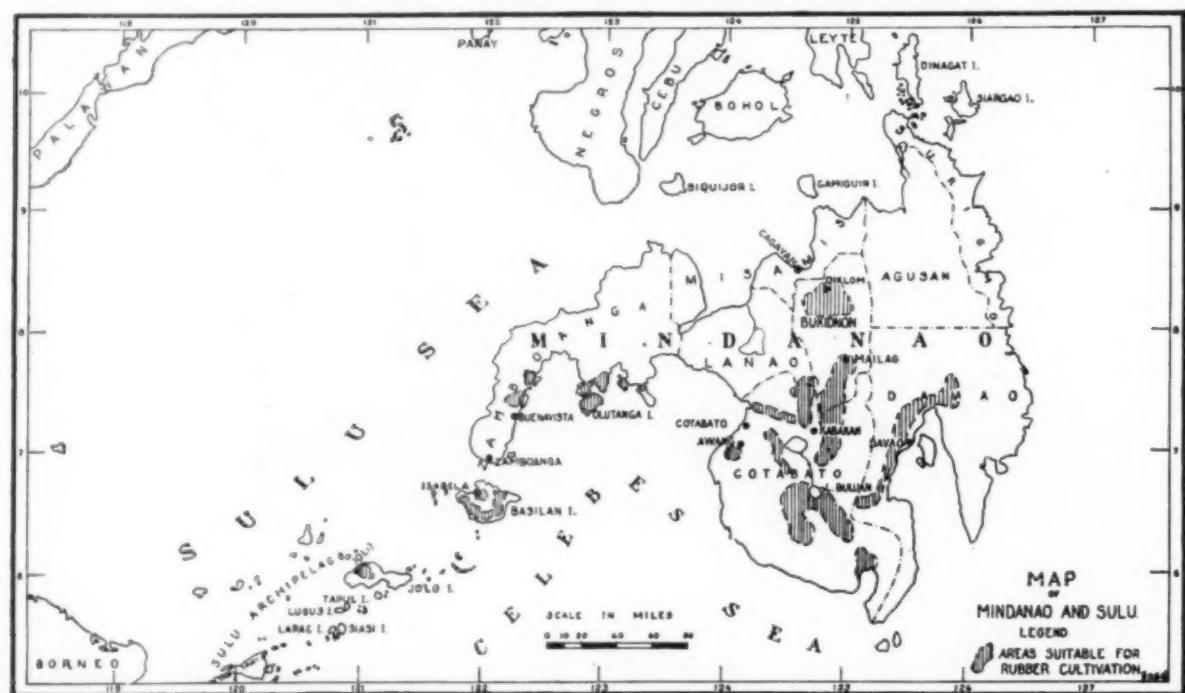
Soils weathered from basaltic rocks predominate in the Philippines as contrasted with soils from acid igneous, siliceous sedimentary and metamorphic rocks in Malaya and Sumatra. When developed, these basaltic soils show a finer and more uniform physical texture, allowing good aeration at greater depths, greater capillary power, greater conversion of organic matter and

a rubber plantation. The rubber planted on virgin forest land in the Philippines, however, shows almost negligible losses from root diseases, even though clean clearing has not been practiced. Rubber planted on grass and other lands kept clear of tree growth for some time is generally free of root diseases.

The commercial development of the timber resources of the Philippines, made possible by the introduction of steam logging, suggests the possibility that prospective rubber planters may greatly reduce their clearing costs by arranging to buy timber lands from logging companies after they have been cut over.

#### Capital and Production Costs

No complete figures are available for the actual capital cost of bringing rubber into bearing on the few small plantations in the Philippines; incomplete figures and the methods used indicate that it is somewhere between \$100 and \$200 per acre, as compared



Map of Mindanao and Sulu, P. I.—Shaded Areas Suitable for Rubber Cultivation

better resistance to surface wash. Indications are that such soils are more suitable for rubber plantation projects than are those on which the bulk of the world's rubber is being produced today.

#### Grass and Forest Lands Compared

The Philippines, like the countries of the Middle East, were originally covered with virgin jungle, but due to the shifting agricultural methods of the natives considerable areas, especially in the Philippines, are now covered with cogon grass like the lallang of the Middle East. If grasslands with gentle topography are chosen for plantation development in preference to forest lands, opening costs may be considerably lower. There is no physical difference in the character of forest and grassland soils provided they have the same origin and development, except that there is a greater amount of organic matter in grassland soils.

Clean clearing of virgin jungle, such as has been found necessary in Malaya and Sumatra to prevent the spread of tree diseases originating in jungle stumps, adds greatly to the cost of opening

with an average of \$250 to \$300 per acre in the Middle East. For forest lands clean clearing has not been practised. Catch crops have been raised on part of the area planted; such crops, together with the grazing of cattle among the rubber, have aided materially in reducing upkeep expenses. A gauge of the low opening costs on grass lands that might be attained can be found in the \$25 per acre contracts that have been made for planting cocoanuts. Favorable physical conditions in the Philippines indicate that, if the generally accepted standard methods of the Middle East are used, even with higher labor costs, the capital cost of opening in the former region might be kept on a competitive basis with those regions now available for new rubber plantings in Sumatra and Malaya.

Production costs on the small areas being tapped in the Philippines are not sufficiently complete or accurate to be conclusive, but estimates such as that of 14.56 cents per pound on Basilan estate indicate that by the introduction of certain economies not generally accepted in the Middle East rubber is produced at a slightly lower cost level than the average of the older area. It

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would seem that by taking advantage of the experience of the East and with the added asset of better natural conditions present in the Philippines rubber can be planted and produced at a figure comparable to the average production costs of the Middle East.

#### Sources of Labor

The present Philippine plantation force is local or obtained from adjacent provinces. It might ultimately be possible to mobilize from the 10,314,000 Philippine population 100,000 laborers for plantation work in the islands; of this total 85,000 would be supplied by the more northern provinces and 15,000 locally. This number would be sufficient to care for upward of 500,000 acres, capable of producing when mature 70,000 tons of rubber. Present laws do not permit the importation of Chinese or other oriental labor as the very common practice in the Middle East. The Philippine legislature has power, however, to pass laws permitting such importation, subject to the approval of the President of the United States.

The cost of recruiting for the southern islands is said to average \$10 per laborer. It cost the Philippine Government from \$8 to \$20 to transport homeseekers from Luzon and Cebu to Cotabato in 1922. By way of comparison the cost of recruiting in the Middle East is as follows: recruiting Indians for Ceylon and Malaya, \$10; recruiting Javanese for Sumatra, \$48; recruiting Tonkinese for Cochin China, \$18; recruiting Chinese for Borneo, \$50.

#### Wage Scales

The present basic wage in the southern Philippines for agricultural labor is 40 to 60 cents per day; there is in addition a small charge for recruiting when labor is obtained from other parts of the archipelago. The basic scale in the Middle East is 20 cents per day for Indians and Javanese; for Chinese, 35 cents. Housing, sanitation, etc., under existing legislation, and recruiting charges, when included in labor costs, bring the total cost of Indian and Javanese labor up to 35 cents but do not affect the Chinese because not applicable to them.

The higher degree of intelligence and the better living conditions, with their attendant advantage of greater physical vigor, lead many to believe that Philippine labor is more efficient than the general run of labor in the Middle East. Others maintain that these advantages are more than offset by the better discipline of Eastern labor. It is generally admitted that the chief drawback of Philippine labor is its independence, usually expressed in working part instead of full time, thus causing a high turnover. Competent observers maintain that under proper guidance Philippine labor has improved greatly in this respect, and that it is only a question of time when this disadvantage will be overcome. One of the forces contributing toward this end is the increasing wants of the laborer; formerly he could satisfy his wants by working, say, three days a week; now he is gradually lengthening his period of work to meet newly acquired desires.

#### Health and Sanitation

Reliable mortality statistics covering the rural districts of the Philippines and the Middle East are not available, but a comparison of the mortality rate of the city of Manila with that of Singapore seems to indicate that the health conditions of the Philippines are better than those of British Malaya.

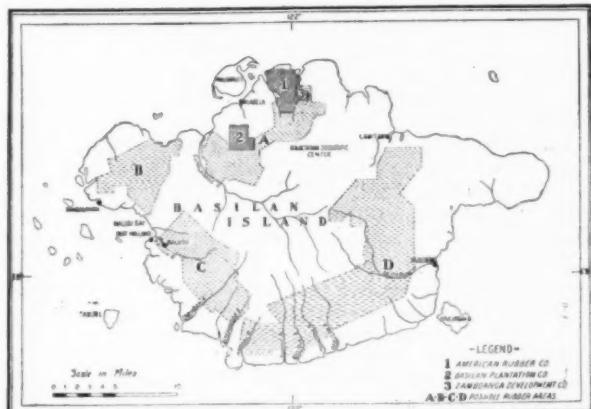
In the Philippines, the predominating Christian population, the higher percentage of literacy, the efforts of the schools to teach hygiene, and the effective propaganda work of the Health Service all make for better health control. In the Middle East the lower intelligence of the mass of the population, in some instances complicated by religious prejudices, increases the difficulty of imposing health measures. On the whole the cost of sanitary measures in the Philippines ought to be less than elsewhere in the present rubber growing regions. The Health Service is already well established in the regions of the southern Philip-

pines under consideration, and new agricultural projects would share in its benefits which offer a distinct advantage over many other tropical regions suitable for rubber growing that do not yet have such service.

Little legislation compelling planters in the Philippines to carry out sanitary measures on behalf of their labor exists, whereas sanitary control is compulsory in the main centers of rubber production of the Middle East.

#### Land Laws

The present land laws, designed to retain a diffused land ownership, do not lend themselves to large capital operations in



Existing Plantations and Possible Rubber Areas—Basilan

rubber plantations. Nevertheless, moderate sized plantations are possible with foreign capital, and, moreover, the small native planter, with encouragement, might become a producer of important further supplies.

The prosperity of the native planters in certain parts of the Netherlands Indies, where rubber planting has been fostered by the Dutch authorities, prompts the thought that the same means might be taken in encouraging Filipinos to plant rubber with their annual crops grown on small forest clearings. Such a plan would be in harmony with the present land policy of the Philippine Government by helping to solve the problem of inducing the so-called *cañigán* farmer to become a permanent landholder and, if carried out, would increase the productive wealth of the islands.

Under the present land laws a corporation can purchase 1,024 hectares (2,530 acres), or a corporation or an individual can lease that area for 25 years subject to renewal for two additional periods of 25 years each. While the law does not specifically state that a corporation can purchase one plot of 1,024 hectares and lease another of the same size, it is possible that the law would be interpreted favorably in this regard, in which event the limit to the amount of land under the control of a corporation would be 5,060 instead of 2,530 acres. The Philippine Legislature has power to make grants of lands with more favorable terms, subject to the approval of the President of the United States.

Very little of the land in Mindanao and Sulu is privately owned. All land in the Philippines is either forest or agricultural land as determined by the Director of Forestry. Public agricultural land may be acquired by lease or purchase by citizens of the Philippines or of the United States, or by corporations or associations 61 per cent or more of whose capital belongs to such citizens. The price of the land is determined by appraisal by the Director of Lands but cannot be less than 10 pesos per hectare (\$2.03 per acre).

The annual rental of leased land cannot be less than 3 per cent of the appraised value of the land. Rentals are subject to change through reappraisal of the land every 10 years. Public forest lands are not salable and can be operated only under lease or forestry license. The timber cut in clearing must be paid for at the regulation stumpage rates ranging from 0.50 to 6 pesos per cubic meter. The area obtainable is not limited, as in the case of public agricultural lands. A charge of 10 per cent of the local market value of forest products other than lumber, including gums and wild rubber, is levied as an internal revenue measure. In addition, a tax of 1.5 per cent on the gross value of sales of the forest products marketed is imposed.

### Taxes and Duties

Taxation is dependent on the financial condition of a country. In the Philippines, during the decade 1914 to 1923 expenditure exceeded revenue only twice, and imports exceeded exports only twice. The bonded debt is given as \$77,000,000, about \$6.50 per capita, compared with nearly \$10 in the Netherlands Indies. Generally speaking, the Philippines are in a good financial position and compare favorably with Malaya and Cochin China. Most eastern countries will experience a gradual readjustment of their budgets owing to decreasing revenue from opium, and new taxes will be levied in other channels; this problem is not present in the Philippines.

Public lands, leased or purchased, together with the improvements made thereon, including planted rubber trees, but excluding machinery, tools, etc., used for agricultural purposes, are subject to a land tax even though the title remains in the Philippine Government. The current rate in the town of Zamboanga is 1.125 per cent and in the nearby provinces is 0.625 to 0.875 per cent of the assessed valuation. Thus, if an acre of rubber is taken as worth, say \$200, the annual tax would be \$1.75 per acre at the 0.875 rate. At the present time there are no separate provincial or municipal taxes imposed.

An annual income tax of 3 per cent is imposed upon the net income of every corporation, joint stock company, partnership, association, etc. A domestic corporation is taxed on its income from sources within and without the Philippines, but a foreign corporation (which includes American companies) is taxed only on its income from sources within the archipelago.

There is a sales tax of 1.5 per cent on "merchants' sales," but it is not collectible on "agricultural products when sold by the producer or owner of the land where grown."

There are no export duties at the present time on plantation rubber in the Philippines, Netherlands Indies, or Cochin China. Export duties are levied in all the British possessions in the Middle East, where also measures of temporary duration restricting the exportation of rubber are in force. The Philippines and producing regions other than the British possessions have no such restrictions.

### Existing Plantations and Their Condition

Because the four existing commercial plantations represent the only practical experience in Pará rubber plantation development in the islands considerable detail is given in the report regarding the special characteristics of each and the methods in use. This data is briefly summarized below.

The ownership, nationality, acreage and total number of trees on the existing plantations are as follows:

#### COMMERCIAL RUBBER PLANTATIONS

Name of Company	Nationality	Acreage in Rubber	No. Trees Planted
American Rubber Co.	American	1,625	175,000
Basilan Rubber Plantation Co.	Swiss	795	89,500
Rio Grande Rubber Co.	Scottish-American	360	29,750
Zamboanga Development Co.	Japanese	110	10,000
		2,890	304,250

Girth measurements of trees on representative plots in the different plantations are as follows:

GIRTH MEASUREMENTS OF RUBBER TREES				
Age of Trees Years	American Inches	Basilan Inches	Rio Grande Inches	Zamboanga Inches
4	9	16	15	..
5	14	21	22	..
6	..	26	..	..
7	..	30	..	..
8	..	34	..	..
9	..	36	..	29
10	..	39	37	36
11	..	41	..	..

Such data as are available concerning yields on three of these plantations follow:

Plantations	Area in Tapping Acres	Trees Per Acre	AVERAGE YIELDS		Tapping System
			Age Number	Per Tree Day; Grams	
American	10	108	5	4.6	1 cut on one-half, alternate day.
Basilan	400	105	8	6.2	2 cut on one-third, alternate day.
Zamboanga	110	120	9.5	5.4	1 cut on one-third, daily.
					2 cuts on one-third, daily.

<sup>1</sup>Based on 2 months' tapping, November and December, 1923.

<sup>2</sup>Based on 6 months' tapping, July to December, 1923.

<sup>3</sup>Based on 10 months' tapping, 1923.

Crude rubber exports from the Philippines in recent years have been as follows:

PHILIPPINE CRUDE RUBBER EXPORTS					
Years	Total Exports Pounds	To United States Pounds	Years	Total Exports Pounds	To United States Pounds
1914 .....	3,422	2,811	1919 .....	191,366	189,891
1915 .....	72,754	72,754	1920 .....	132,197	126,174
1916 .....	29,224	28,717	1921 .....	89,566	49,229
1917 .....	65,761	64,548	1922 .....	....	....
1918 .....	76,026	75,111	1923 .....	86,087	5,291

These figures include plantation rubber, some wild rubber, and probably some plantation rubber from the Middle East sent to the Philippines for reshipment to the United States. Most of the plantation rubber is now shipped to Singapore.

Tapping, collection and coagulation methods are practically the same in the Philippines as in the Middle East and so do not call for special comment.

### Conclusions

The conclusions reached by the investigation are that there are vast areas in the Philippines where the natural advantages are such that new plantations could be opened and rubber produced at costs that would not be materially different from those of new openings in jungle land in most parts of the Middle East.

Unless more radical changes in planting and production methods that will further reduce costs are introduced, the Philippines cannot be expected to produce at so low a cost nor to earn so great a return on money invested as many of the Middle Eastern estates located in the best areas, where heavy expenditures in clearing jungle, conservation of soil, etc., were unnecessary; nor can new areas be planted in the Philippines as cheaply as extensions to existing estates in the Middle East can be made on reserve land. But as favorable areas become more difficult to find in the Middle East the competitive position of the Philippines will become stronger.

### WOMEN EMPLOYED IN RUBBER INDUSTRIES

According to a bulletin issued by the United States Department of Labor and entitled "Facts About Working Women," there were in the United States in the year 1920, 86,204 semiskilled persons working in rubber factories, the women employees numbering 18,834. Under the heading "Laborers, not otherwise specified," a total of 51,467 is mentioned, of this number 3,952 being women.

THE AMOUNT OF CHICLE IMPORTED BY THE UNITED STATES DURING the eleven months ended May, 1925, totaled 9,763,155 pounds, value \$4,824,548.

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## Present-Day Proofing

**A Presentation of Manufacturing Experiences—Solvent Problems—Proofing Stocks—Rubber Substitutes—Gasoline Consumption and Solvent Recovery—The Finish and Cure**

By S. G. Byam

WITH so much in print about rubber, it is astonishing how little is written about the smaller branches of this great industry. This is natural, perhaps because of the vast importance and size of tire manufacture, which to such a large extent overshadows the other smaller manufacturers. However, the proofing of fabrics, on account of its early origin as a trade for using rubber and the importance of its products, deserves a more enlightened presentation than it has had in the literature of the day, so that interested individuals may have a more intelligent idea of its practical phases than is now possible. It would seem that there are not enough authentic and practical writings on this subject and that often, where reference is made to proofing, the information is too obviously elementary or too inexact to be of value to interested readers. In this connection a recent article on accelerators contained a reference to the so-called "acid cure" as used in proofing. The reference itself applied to the mixture of ingredients used for the acid cure and its effect on the finished product. The conclusion drawn by the author was decidedly derogatory to the value of such cures. In fact, there seemed to be an implication without qualification that this method of curing produced an inferior product. Of course, readers of the article who are familiar with proofing technique will recognize the absurdity of the statements, knowing that acid cures are excellent for certain products when used correctly; and they will see at once from the inaccurate description of the curing mixture that the author had no direct knowledge of what he wrote, having doubtless taken down the mixture formula from some old and obsolete rubber book. It seems, therefore, that the conclusion was obviously unwarrantable, for unless there is a knowledge of all the facts, an opinion can be of little value. Fortunately, the article appeared in a trade magazine which the general public or the tradesmen to whom the proofers sell are not likely to read; but nevertheless, an inaccurate reference and an unjustified implication made in a reputable trade journal by an able technician and writer, is bound to carry weight.

It would seem, therefore, that the literature of this interesting and important proofing industry can stand being added to from within its own ranks. We can at least present the facts of manufacture and our opinions based on them from our own experience. If differences in opinion appear between ourselves and become cleared up through honest argument, then we may have gained something for ourselves and for the general good of the industry. The day of trade secrets is past and we are finding that we all have much to gain and little to lose by making known our process methods.

### Importance of the Solvent

In the proofing or rubberizing industry the rubber stocks are churned with naphtha into a heavy cement that can be spread smoothly on a fabric. This relatively simple operation presents certain problems that must be carefully considered by the rubber technologist who wishes to manufacture this highly competitive product successfully. The field for the use of rubberized fabrics has been considerably curtailed during the last few years because of the fast growing popularity of sheet gum for fancy aprons, baby pants, sanitary specialties, etc., for which articles fabrics were previously used. This condition forces the too numerous proofers to cut all possible corners and yet produce superior

quality in order to remain in business. Probably the greatest material expense in the production of rubberized fabrics, after rubber and fabrics, is for naphtha or gasoline. The function of the gasoline is only to reduce the rubber stock to such a state of plasticity that it can be spread evenly in a very thin coat on the fabric. The gasoline must then be completely evaporated to leave the thin film of rubber, and the next coat applied. Therefore, gasoline must be considered with regard to its effect on its solution of the rubber and its evaporation from it. Gasolines generally used for this purpose range from the so-called motor gasoline 58-60 degrees Bé, to high test 70-72 degrees Bé. The lower cost of motor gas must be weighed against the greater solvent power and faster drying properties of the high test grade in deciding which is best for use. Incidentally, the faster evaporation of high test gas during churning and handling prior to actual spreading is a point rather against its use. Special gasolines are marketed which are claimed to be superior to the standard grades because of the nature of the distillation cut. For instance, a special run gasoline having a much higher initial boiling point than either motor or high test gas, say 200 degrees F., and an end point of 300 degrees F., at least equal to that of the high test, might be supposed to have the desirable features of being slow to evaporate during churning because of the absence of low boilers and fast drying on the spreader because of its low end point. Unfortunately, this apparently satisfactory result does not occur in practice. The absence of the low boilers seems to retard the rate of solution of rubber in the gasoline, thereby increasing the time of churning and the cost of power. It seems also true in practice that this kind of gasoline does not dry as fast on the spreader as the high test gas having the same end point. Doubtless this is caused by the greater percentage of fractions above a given temperature. A comparison of the distillation figures of motor, high test and the special cut gas shows that at a temperature of 200 degrees F., 65 per cent of the high test grade has evaporated, whereas the special cut has only started to distil.

Per cent Distilled.	Motor Gas 58°—60° Bé Degrees F.	High Test 70°—72° Degrees F.	Special Cut Degrees F.
Initial B. P.	120	120	200
10	158	138	219
20	192	150	225
30	214	160	230
40	230	172	235
50	250	182	240
60	269	194	247
70	287	208	256
80	305	228	267
90	307	266	285
End Point	380	300	300

If the high test gas can be obtained readily and handled so that the price differential over motor gas is not over 3 or 4 cents per gallon, it is unquestionably the most satisfactory grade for proofing. The residues of heavy oils are negligible and no trouble is encountered from decomposition of the coating because of their presence therein. Higher speeds on the spreader machines may be used and still obtain proper drying. Spreaders for average proofing work usually operate at about 20 to 25 yards per minute, but with careful supervision and well-balanced compounds, speeds of 45 and 55 yards per minute can be used.

These high speeds which will allow an operator to produce 10,000 running yards or more per day make for sufficient economy to more than offset any extra evaporation of high test gas from the churning. Such high speeds as mentioned would be entirely impracticable with other than high test gas.

#### Churning and Solvent Recovery

The churning of stocks for spreader use offers many interesting problems, which if carefully studied and worked out will result in considerable saving of gasoline that would be otherwise lost. As the gas is absolutely essential up to the time of its removal on the spreaders, it is necessary that as little as possible should be lost during churning. The use of horizontal churning built air tight, of course, is very desirable, as all solvent is retained during the period of churning. This type of churning precludes the need of any additional gas beyond that actually required to produce a mixture of the proper consistency. As the proofing of fabrics is one of the older branches of the rubber industry, most plants are not equipped with these modern churning, and they have instead, the regular upright paddle bladed churn with the loose fitting cover. During churning, considerable heat is developed through friction. A certain amount of this heat is really beneficial as it helps soften the rubber and so aids in its solution in gasoline. But the heat, in warming up the gasoline as well, increases the rate of its evaporation from the loosely-covered churning. It is estimated that from 12 to 20 per cent of the gas used for proofing is lost by evaporation during churning. This loss by evaporation, of course, increases with the time required for churning, which in turn depends on the rubber content of the stock and other factors. The make-up of a good spreading and churning stock and how it should be milled is discussed below. The thinner and warmer the stock when it enters the churn does much to make it churn fast and should be given consideration in this connection.

Recovery of gasoline evaporated from the churn may be possible but should be unnecessary if all practical precautions regarding the preparation and handling of the stock and the operation of the churning are taken. It is possible, and really very desirable, to prevent much gas being lost from old-type churning by installing cold water coils within the top cover of the churn. Such a coil does not interfere with the loading of the churn or the helpful heat due to friction. It does, however, condense most of the gas vapors trying to escape from the churning. This simple arrangement installed in several churning from which records were carefully collected for nearly a year have proved a reduction of 10 per cent of the gasoline previously used. This saving of one gallon in ten amounts to a very respectable sum of money to the average proofer, who probably uses 150,000 gallons per year.

#### Making Up Proofing Stocks

The rubber technologist has an interesting job in making up his stocks for proofing, for they cover a wide variety of qualities for numerous different purposes. Also, he must consider every stock with regard to its relation to milling and churning, its gasoline requirement, its spreading characteristics, and its effect on the ultimate finish as well as its inherent quality. One of the most important points in the handling of these stocks lies in the proper milling, as smooth spreading and low gasoline requirement for churning depend upon it. A given stock insufficiently milled will be so ropey on the spreader that many extra coats will be required to obtain the specified weight. Stocks of even medium quality often require 20 per cent more gasoline in churning to effect solution, to say nothing of more time, when not milled enough. It is also true that the stocks should be sheeted as thin as practical so that they may present the greatest possible surface to the action of the solvent, and should be added to the churning in small pieces. Practically any means of obtaining quick cutting up of the stocks is desirable in saving solvent and usually

helps to produce stocks that spread smoothly on the machine.

#### Rubber Substitute

After rubber, probably the most valuable compounding ingredient is the misnamed rubber substitute. It is misnamed because this material, also known as factice, is not a substitute for rubber but rather a very essential material which imparts definite and extremely desirable effects of its own. Unquestionably, factice adds to the spreader stock the very important qualities of spreading smoothness, velvet finish and resistance to oxidation. Its low gravity allows the compounding to make his stocks give added bulk at the required weight. It is found that factice can be safely used in single texture work in amounts up to 100 per cent on the rubber content. Such amounts are probably common practice to the average proofer who realizes the many advantages. Inasmuch as the gasoline consumption of every stock must be considered, it is essential to know what the effect of factice in a stock may be on this requirement. It is sometimes claimed that a substantial quantity of factice in a stock reduces the gasoline needed for churning. However, records kept on a number of typical stocks over a period of years have shown this to be hardly the case. In other words, two 30 percent rubber compounds will probably both take the same amount of gasoline, even though one has no factice and the other contains 20 or 30 per cent. As only the rubber actually dissolves, it really cannot be expected that less gas should be used because factice is present. But there is a decided gain in this respect from using factice. For most purposes, the material with a 30 per cent stock is no better from a practical quality standpoint than another coated with a 20 per cent stock which contains 20 per cent factice. Here the gasoline saving, as well as the cost of the coating, will decidedly favor the second stock.

FIRST STOCK	
Rubber, 30 lbs. @ \$0.50.....	\$15.00
Other ingredients, 70 lbs. @ \$0.03.....	2.10
Total cost per lb.....	\$17.10
Specific gravity .....	1.80
Approximate gasoline requirement for churning 100 lbs. stock.....	22 gals.

SECOND STOCK	
Rubber, 20 lbs. @ \$0.50.....	\$10.00
Factice, 20 lbs. @ \$0.15.....	3.00
Other ingredients, 60 lbs. @ \$0.03.....	1.80
Total cost per lb.....	\$14.80
Specific gravity .....	1.62
Approximate gasoline requirements for churning 100 lbs. stock.....	13 gals.

While there may be some who will question whether the 20 per cent stock containing factice is equal in quality to the 30 per cent stock without it, it is maintained from a practical standpoint that, for the usual uses proofed goods are put to, this statement is not only true, but also that the lower-priced stock is generally superior.

Another benefit regarding gasoline saving derived from the use of factice is due to the effect on milling of the rubber. The 30 per cent stock containing factice requires usually a little longer to mill than the one without it. This extra milling softens the rubber more and, therefore, reacts to make it churn faster and consume less gas. In this way it may be considered that factice does reduce the gasoline requirement, but we prefer to give the credit to the milling and not to the factice, as the stock without factice milled equally will show an equivalent result. From the practical factory standpoint, however, any ingredient or condition that will compel the erratic mill man to properly mix his churn stocks must be considered with great favor. Factice is such an ingredient.

#### Gasoline Consumption

From actual factory records kept over a period on every proofing stock used, we are able to draw the conclusion that, in a general way, the gasoline required to produce a mixture of the proper consistency for good spreading is about proportional to

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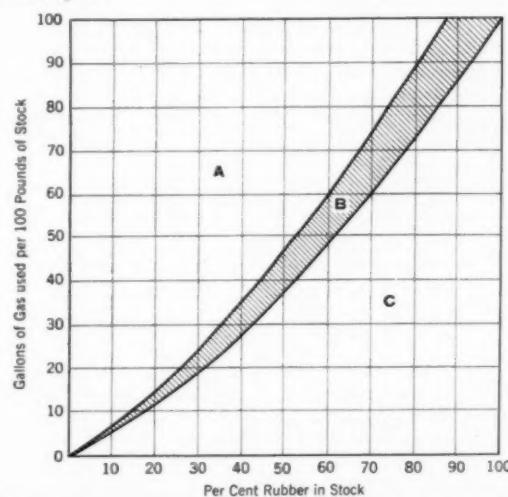
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the rubber content. There are exceptions to this, of course, but these seem to point to other conclusions which are of value. For instance, the figures indicate that black stocks require more gasoline to reduce them to the plastic condition necessary than do white or colored stocks. Before going further, it should be stated that a good spreading stock is one that is just heavy enough to be picked up by the operator with his soap-coated hands and will roll smoothly in front of the spreader knife without breaking or twisting. Such a stock deposits on the fabric a smooth, uniform film of rubber of the maximum thickness allowed by the adjustment of the knife. The harsh, twisting stock is unfavorable because it leaves a broken film which is so thin that many extra coats are required to obtain the specified weight or thickness of coating.

We find that the amount of gasoline consumed in churning a stock is about 20 per cent higher than that actually present in the stock at the time of spreading. This difference is accounted for by handling and evaporation losses during churning. The loss of gas from the tubs used to transport the churned stock from churn room to spreader is slight due to the quick evaporation at the surface and the formation of the crust or skin which cuts off further evaporation.

When the gasoline content of a number of actual proofing stocks, of similar spreading consistencies, but of varying qualities, was plotted against the rubber content, a definite and regular curve was developed.



(A) GASOLINE CONSUMPTION AREA REPRESENTING WASTE OR EXCESS GAS AND INDICATING POOR CONDITIONS, (B) SHADeD AREA REPRESENTS AVERAGE GOOD CONDITIONS, GAS NEEDED PLUS ABOUT 20 PER CENT CHURNING LOSS, (C) REPRESENTS EXCEPTIONALLY FAVORABLE CONDITION. POINTS RARELY FALL IN THIS AREA.

Forecasting the gas requirement of new stocks against this curve showed a satisfactory agreement with the actual practice when the stock was churned. This feature is very valuable when coatings requiring new stocks are demanded at short notice and costs must be figured before trial factory runs can be made. Some typical spreading stocks are indicated in the following table showing the gasoline required for churning.

Stock	Per Cent Rubber	Per Cent Factice	Gallons Gasoline Per 100 lbs.	
			At Churn	At Spreader
1	12	10	9.5	7.0
2	14	10	10.3	7.5
3	17	—	11.5	8.5
4	20	6	15.0	13.0
5	20	20	15.0	13.0
6	26	7	19.5	17.0
7	30	—	25.0	22.0
8	36	2	29.0	27.0
9	40	18	36.0	30.0
10	45	—	39.0	33.0
11	60	10	60.0	48.0
12	80	20	90.0	80.0
13	100	—	110.0	100.0

Knowing the amount of gasoline actually required to produce the desired consistency in a stock, it is easy to control the amount required for churning. A high gasoline consumption on a stock that shows on the chart that it should take materially less, would be traced back to improper milling, incorrect filling of the churn, wrong records, or to one of several other reasons. The exceptions due to the nature of the stock would be well known to the control chemist and would be allowed for. Compounding based on principles to hold down the gasoline consumption and careful control of all other means for accomplishing this end, are essential to economical operation of the proofing plant and are as desirable, if not more so, than gasoline recovery. The best way to save gasoline is not to use it, and a recovery system where gas is unnecessarily used, may not net much real saving.

#### Solvent Recovery System for Spreaders

As has been said, gasoline is used in proofing simply to reduce the rubber stocks to such a state of soft plasticity that smooth spreading on fabric is possible. As soon as spread, the fabric is heated to completely expel all the gasoline. Therefore, the gasoline is a distinct loss, and represents no actual part of the finished product. For this reason, it is most wasteful to allow it to be driven into the air, if there are practical means for recovering it. The recovery of gasoline from average spreading work offers several problems as to its practicability, particularly along the lines of actual economy and safety. Any recovery system must perfectly pass muster for safety before it should be considered worth while for factory operation. When any inflammable material is handled, there cannot help but be some risk, and all possible safeguards must be provided to prevent possible injury to life or property. When gasoline is enclosed, it may under certain conditions become more dangerous than when free, and it is this feature of enclosure, necessary to a recovery system, that must be made entirely safe.

In a general way recovery systems for spreaders fall into three classes: (1) those involving collection of vapors by suction and condensation by pressure; (2) depending on condensation in the enclosed spreader machine by cold water; and (3) where the vapors together with steam are forced into and absorbed by prepared charcoal, from which the gasoline is later distilled with steam. Doubtless, all three methods have features which commend them, though the last two seem to meet with more approval among those concerns who are experimenting with them. The recovery of gasoline from spreaders, is of course, possible, but it does not yet measure up to the standards of safety and economy that some enthusiasts claim for it. The lower cost of operation and installation of the cold water condensation method is somewhat offset by its slightly greater risk of explosion and lower recovery yield than the charcoal method. On the other hand, the charcoal method, while yielding a higher recovery percentage and perhaps being safer, has a very high installation cost and consumes so much coal to furnish the steam for its operation that its economy is doubtful. The factors of safety and economy must be carefully studied by the proofing manufacturer who considers gasoline recovery. If such factors are all known and the conditions of location and enclosure are favorable, it is quite probable that the recovery system can be worked out successfully. At the rate present investigations along this line are progressing, there is little doubt but that a safely economical, moderate priced method will soon be available.

#### The Finish and Cure

After coating on the spreader, the rubberized fabric must be finished by starching and curing. The usual cure is the "acid cure," meaning the use of the sulphur chloride in vapor or liquid form. The vapor cure is applied to the goods, which have been festooned in large ovens, by evaporating the sulphur

chloride from open dishes on steam coils. The operation of this cure is disagreeable to the workman who fills and removes the dishes. It has been found that although the workman should have a gas mask provided for his comfort, the fumes do not have any really harmful effect on his system, and that he is unusually free from colds. This is mentioned because of the prevailing notion, especially among insurance and state health inspectors, that sulphur chloride fumes are particularly dangerous.

The sulphur chloride attacks both sides of the rubber coating when cured and, if circulation within the curing chamber is adequate, gives a very uniform and satisfactory cure. The acid vapor penetrates the fabric and, if not properly neutralized with ammonia, may noticeably weaken it. Such difficulty rarely arises, however. When sulphur chloride is used in the "wet" or "liquor" cure, it is dissolved in carbon tetrachloride and gasoline or benzol. The function of the tetrachloride is principally for fire prevention and that of the gasoline or benzol simply a diluent, as a very weak solution is sufficient. It is claimed that the use of benzol as diluent produces a pleasanter odor than gasoline, which point is of value. The solution is applied only to one surface of the rubber coating and produces, of course, only a surface cure. Material cured by this wet method ages decidedly better than that vapor cured. This very noticeable difference is due to the state of under or no cure on the back of the coating, allowing the retention of flexibility even though the outer surface takes its share of oxidation. Sample books of rubberized fabrics ten years old have shown wet-cured goods to be in good condition whereas the vapor cures are dried out and cracked. It is because of such evidence that an implication that acid-cured goods are inferior brings forth our answer that they are excellent when used correctly for the right purpose and that the person who condemns their use is obviously inexperienced.

The use of either the vapor or wet cure depends very often on the finish the goods must have. The popular "electric" finish is produced by the use of one of the sparkling lustrous starches applied on the surface. In this case the vapor cure can only be used as the wet method would wash off most of the starch. The dull, velvet-surfaced goods usually take the wet cure, which results in the maximum aging resistance. Corn starch thoroughly dried, gives the best result when such dull finishes are desired. Dyed starches have sometimes been used when special colored effects were wanted, though their use is not general. Talc can be used to produce a soapy feeling but not sticky finish, which has met with some favor during recent seasons in the so-called "slicker" coating developed to imitate the oil-skin slicker. Various varnish finishes made with gums, shellac, casein, etc., meet with favor at times, for the fickle proofing trade is forever looking for something new and different.

The dry heat cure is also used extensively in the proofing industry, particularly for double textures where the rubber could not readily be reached by sulphur chloride and for heavy spread or calendered coatings which are too thick for the acid to penetrate sufficiently. The acid cure, either wet or vapor, must come in direct contact with the rubber and must only be applied to very thin coatings of not over ten or twelve thousandths of an inch. The dry heat cure is far from being an ideal medium for obtaining uniform vulcanization. However, fairly uniform heating conditions are obtainable, if the heating coils are controllable in sections by separate valves and there are several recording thermometers which show the temperature in various parts of the chamber during the cure. Forced draught arrangements are possible and desirable unless varnished surfaces may be blown together. The long five hour, dry-heat cures are fast being reduced to less than two hours through use of the modern ultra accelerators. These also make possible the production of bright colored goods, for no color changing litharge or other lead compounds need be employed.

It is realized that the above is very general and skims over a

great deal of ground all too briefly. However, the material presented is all based on practical experience and is offered for what it is worth. It is hoped that interest may be stimulated so that the experience and opinions of others will be published.

### The Stevenson Plan and Rubber Prices

The revised "Standard Production" under the Stevenson Act is: British Malaya 260,000, Ceylon 66,000, a total of 326,000 tons. An additional 15,000 tons will be allowed to be exported during 1925 under "Special Allowance," or 1,250 tons per month. The numbers of tons monthly under the different percentages of standard production are shown in the following table, the special allowance or 1,250 tons being included in each total:

Per cent of S. P.	Tons Monthly	Per cent of S. P.	Tons Monthly
100	28,416	75	21,625
50	14,834	80	22,982
55	16,192	85	24,340
60	17,549	90	25,699
65	18,907	95	27,056
70	20,266		

If the quarterly price of rubber had averaged 1s 3d per pound since restriction was enforced, the present export would have been on the basis of 110 per cent of standard production. Even if this average price had been maintained the past year, the present export would be 85 per cent. Therefore it will not be until the end of 1925 that the shipments of rubber will meet the probable requirements even if the world consumption is conservatively estimated at 80 per cent.

From August 1, 1925, the export permitted is 75 per cent of standard production. If the price of rubber averages from 1s 3d to under 1s 6d, a 5 per cent quarterly increase, amounting to 1,358 tons per month, is allowed. If the price averages 1s 6d or over, a 10 per cent quarterly increase is allowed, amounting to 2,716 tons per month.

The following table shows estimates of shipments and of consumption for 1925:

	SHIPMENTS		REQUIREMENTS	
	Tons total	Tons per mo.	Tons total	Tons per mo.
British Malaya & Ceylon (max. allowed)	233,688	19,474	U. S. A. ....	350,000 29,167
Dutch E. Indies .....	175,000	14,583	U. K. ....	25,000 2,083
Other plants .....	27,000	2,250	France ....	37,000 3,083
Brazil .....	23,000	1,917	Germany ....	29,000 2,417
W. Ind. (Africans, etc.) .....	6,000	500	Italy ....	9,500 791
Probable deficit to be met out of stocks .....	38,812	....	Canada ....	15,000 1,250
Total .....	503,500	38,724	Japan ....	20,000 1,667
			Rest ....	18,000 1,500
				503,500 41,958

The following are the fixed quarters for allowance changes: November 1 to January 31, February 1 to April 30, May 1 to July 31, August 1 to October 31.—*The World's Rubber Position*. W. H. Rickinson & Son, 3 Great Winchester street, London Wall, E.C. 2.

### INCREASE IN EXPORTS OF BATHING CAPS

The seasonal demand for American-made bathing caps apparently reaches its height during the first few months of each year, the present year being no exception. The shipment of these goods during March, 1925, at \$59,396, represented a record figure, the total exports during the first quarter of the present year having value of \$126,235, as compared with \$117,878, the estimate for the corresponding period of 1924. Shipments during the past year totaled \$272,006. Exports in April, 1925, included 32,194 dozen caps, value \$54,111, the value of the May shipments declining, however, to \$23,624. The June figure was \$27,907.

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## Practical Rubber Saving

### Typical Compounds that Show Less Rubber and More Reclaim

By James J. Johnson

THE last time the price of crude rubber was around present levels, organic accelerators were practically unknown, reclaiming processes had advanced but little over a period of years, and the prices for the finished products were in the luxury class. Going back another decade, when rubber prices were still higher, one recalls the old-fashioned compounder's formula "ten pounds of Parás and ninety pounds of shoddy" for the base of a good black shoe sole. Today the rapid advance in the use of accelerators, the large number of new and better grades of reclaim, makes necessary the changing over of compounds by the introduction of more reclaimed rubber, at the same time maintaining the quality or possibly improving it. In general, when a stock is submitted for the introduction of reclaimed rubber, the procedure falls into regular steps, about as follows:

1. The grade of reclaimed suited to the purpose is chosen.
2. The desired cut in cost is considered in terms of the percentage of rubber to be replaced with reclaim, this also playing a part in the selection of grade.
3. The percentage of rubber times 100 is divided by the rubber content of the selected reclaim, the quotient then indicating the percentage amount of reclaim necessary to replace the rubber removed.
4. Since the figure is always greater than that of the rubber displaced, further adjustment must be made in the compound by withdrawing a percentage of filler equal to the difference between the two figures.

This leaves out of the question any adjustments in plasticizers rendered necessary by the changes. A trial batch usually indicates the proper steps in this direction. The fact that all reclaimed rubber cures faster than crude, sometimes necessitates a further change in the curative in cases where it is desired to maintain the same conditions of cure.

#### Tire Tread Compounds

The tire tread compound is one that can be rearranged to advantage. The factor of balance is a vital one here. It must be remembered that the tread is the top covering for four to eight plies of cotton fabric meshed in rubber, and known as the carcass. This carcass has certain flexing properties which are greater in the balloon cord than in the high pressure cord, and more in both than in the fabric tire. There is no doubt that on the extremely low crude markets of the last few years, some tire manufacturers went too far in the introduction of crude in their treads. In other words, they made them "too fast" for the carcass. The more crude rubber in a tread the greater its bounding action produced by the jars of the road, with the result that many such treads produced greater bending action than the carcass would stand and the tire was out of balance. This meant either separation of the tread from the carcass or breaking down of the carcass prematurely. Furthermore, the all-crude tread was too soft and thus more susceptible to cuts and punctures. On the balloon tire this is a serious difficulty, for with its greater road contact and less air pressure the tread needs more resistance to the road than the high pressure casing. So that those who may have complained of more punctures with balloon tires should blame not the type of tire but the compound.

The following are proportions for a typical tread compound such as used on a low crude market:

TREAD A		Per cent
Smoked sheet	.....	53
Black tire reclaim	.....	6

A revision of the above compound on the same basis follows:

	Per cent
Smoked sheet	42
Black tire reclaim	23

Many manufacturers, especially the larger ones, have been successful in combating the gyp tire evil by marketing along with their first or premium grade tires, good quality second grade tires which are built to yield 10,000 miles of service as against 20,000 to 25,000, which is not an unusual performance today for first quality brands. For these standard quality tires the same tread compound can be further revised as follows:

	C Per cent	D Per cent
Smoked sheet	25	15
Black reclaim	45	65

#### Friction Stocks

We do not hear so much about carcass separation in tires as formerly. Tire manufacturers have found that with the proper compound, rightly timed for cure, the fabric good and hot going into the calender, and the gage held right, the rubber under pressure during vulcanization flows into the interstices of the cords and unites the mass with a bond that insures all the mileage desired. Great tensile strength and resiliency is, of course, required to withstand the constant flexing. Softness is all essential in this compound. Three examples are given as follows:

TIRE FRICTION		
A Per cent	B Per cent	C Per cent
Smoked sheet.... 25	Smoked sheet.... 25	Smoked sheet.... 25
Roll brown.... 63	Roll brown.... 50	Roll brown.... 35
Tire reclaim.... 10	Tire friction.... 10	Tire reclaim.... 10

#### Reclaims in Footwear Stocks

If it were not for the high grade reclams on the market today rubber heels could not be produced at anywhere near present prices. Inner tube stocks are employed to good advantage here. The change from a high grade to a medium grade heel stock can also be quoted as an example:

	High Grade Per cent	Medium Grade Per cent
Smoked sheet	15	7
Gray reclaim	36	47
Black tire reclaim	10	10

	High Grade Per cent	Medium Grade Per cent
Smoked sheet	15	7
Black tire reclaim	46	57

Sole stock for rubber footwear calls for approximately a rubber content of thirty-five per cent or its equivalent in reclaim. There are other factors besides the price of the material to be considered here, however. Let us suppose rubber is very cheap in price and the footwear manufacturer decides to use thirty-five per cent crude in his soles with no reclaim. Soling is run on a small calender with interchangeable engraved rolls which emboss the trademark and design into the rubber. This trademark usually embodies the initial of the company and is placed prominently on the ball or shank of the sole; spacing on the roll design is so figured to allow for the cutting of the largest size sole over each trademark. As the soling comes off the calender in a continuous sheet, it is automatically cut into sheets long enough to cut eight soles, and placed on boards for transportation to the cutters. Under the best conditions four soles out of a possible eight will be the best yield.

from the all-crude sole. The two trademarks on each end of the sheet will be so shrunken out of shape that it will be impossible to get out a perfect sole.

Take the same rubber content and revise the compound to make up its equivalent with a good grade of plastic shoe reclaim, and the cutter will get eight soles per sheet day in and day out. When you figure that it takes almost as much time for the cutter to change sheets as it does to cut out the soles, the crude rubber compound does not look so cheap even on a fourteen cent market. The question is often raised why shoe reclaim and not tire reclaim? The reason for this is found in the treatment to which the shoe sole is subjected. It is cut with a bevel of 45 degrees, and after being placed on the shoe and pressed on, this beveled edge is rolled in to the sides of the shoe and stitched with a serrated roller. Thus the edges of the sole are turned at more than a ninety degree angle from the original shape after cutting. The natural tendency is for it to flatten out or shrink back during vulcanization in an open chamber. The result is "started sole," one of the biggest causes of seconds. Shoe reclaim stays put better than tire reclaim which is a higher grade stock. This does not mean that tire reclaim may not in time ultimately replace the acid shoe stock, but at present the shoe stock has the preference.

The following are typical black shoe soles such as used on rubbers, overshoes, etc., A being for use on a low crude market, B having the preference under present conditions:

	BLACK SHOE SOLE	
	A Per cent	B Per cent
Smoked sheet	17	5
Roll brown	11	9
Shoe reclaim	13	54

#### Miscellaneous Stocks

Reclaimed is now going into many products where it has never before been utilized, and among them may be mentioned the inner tube. The following compounds suggest the possibilities:

	INNER TUBES	
	A Per cent	B Per cent
Smoked sheet	52	36
Tubed reclaim (made from floating tubes)	35	35

Tiling is one of the newer rubber products where reclaim is employed successfully. For example:

	TILING		
	Black Per cent	White Per cent	Colors Per cent
Crude rubber	7.5	20	12
Black reclaim	20	5	18
Neutral reclaim	—	—	—

Thus it can be seen that the growth of the automobile has made available reclaimed rubber stocks of high quality such as auto tire reclaim, truck tire reclaim, tube reclaim, etc., which were unknown in the former days of high-priced crude.

The above is but a brief of what can be and is being done in the saving of crude rubber by the use of reclaimed rubber.

#### INCREASE IN MECHANICAL RUBBER GOODS EXPORTS

Throughout the first six months of 1925 there has been a steady increase in exports from the United States of mechanical rubber goods, the May estimates for rubber belting and hose setting new records. Figures for this one month were: belting, 395,947 pounds, value \$23,722; and hose, 557,334 pounds, value \$216,045. Statistics for packing were not especially noteworthy, the highest figure, \$81,659, being reached in March. It is interesting to find that the total value of the belting exports during this six months period reached \$1,125,695, as compared with \$1,268,235, the figure for similar exports during the entire year 1922, while the corresponding total for hose in 1925 stood at \$1,001,693, as against the 1922 figure of \$1,340,244. Exports of packing in the January-June period reached \$362,849, as compared with the total for 1922 of \$546,115.

#### Consumption of Crude and Reclaimed Rubber

The Rubber Association of America data from United States and Canadian rubber manufacturers covering the consumption of crude rubber and reclaimed rubber in America during the year 1919 to 1922 are as follows:

Year	Crude Rubber, Long Tons	Reclaimed Rubber, Long Tons	Ratio Reclaimed to Crude, Per Cent
1919	202,303	73,535	36.4
1920	196,270	75,297	38.4
1921	169,308	41,351	24.4
1922	283,271	54,458	19.2

For 1921, 1922, and 1923 the domestic production only of reclaimed rubber was reported; since that time, the stocks, production, and shipments of reclaimed rubber have been reported quarterly. The following table shows the reported consumption of crude rubber and production of reclaimed rubber during each period, and the shipments of reclaimed rubber since the beginning of 1924:

Period	Crude Rubber Consumed, Long Tons	Reclaimed Rubber Produced, Long Tons	Ratio of Reclaimed to Crude		
			Shipped, Long Tons	Produced, Per Cent	Shipped, Per Cent
1921:	58,919	14,968	(1)	25.4	(1)
	95,369	19,188	(1)	20.4	(1)
1922:	114,623	25,824	(1)	22.5	(1)
	139,560	27,964	(1)	20.0	(1)
1923:	87,098	19,168	(1)	22.0	(1)
	80,544	15,017	(1)	18.6	(1)
1924:	50,059	15,108	(1)	30.2	(1)
	57,255	20,241	(1)	35.3	(1)
1925:	74,848	21,834	18,828	29.2	25.1
	68,107	12,297	11,285	18.1	16.6
	75,432	16,678	15,231	22.1	20.2
	83,391	25,263	20,864	30.3	25.0
	87,642	25,353	22,922	28.9	26.2

<sup>(1)</sup>Not reported.

The table below combines the Rubber Association report for the United States and Canada for the years 1919 to 1922 with the reports for the United States alone for 1923 and 1924. For 1923, the production of reclaimed rubber as shown above is used in the column for consumption of reclaimed, and for 1924 shipments is the figure employed since it is probably nearer the actual consumption.

The absolute consumption of reclaimed rubber in 1924 appears to have been greater than for any previous year, although the relative use of reclaimed as compared to crude was at a low level throughout most of the year.

The average market price per pound of crude rubber (ribbed smoked sheet) is also shown, and in addition the average value per pound of crude rubber imported into the United States, as computed from official import statistics.

Year	Crude, Long Tons	Re- claimed, Long Tons	Consumption of Crude and Reclaimed Rubber		
			Ratio of Re- claimed to Crude, Per Cent	Average Market Price of Ribbed Smoked Sheet	Average Value Per Pound of Crude Imports
1919	202,303	73,535	36.4	\$0.487	\$0.40
1920	196,270	75,297	38.4	.363	.43
1921	169,308	41,351	24.4	.163	.18
1922	283,271	54,458	19.2	.170	.15
1923	274,956	69,534	25.3	.296	.27
1924	301,778	76,072	21.9	.260	.24

EXPORTS FROM THE UNITED STATES OF MECHANICAL RUBBER goods were estimated for the twelve months ended June, 1925, as follows: belting, 3,699,851 pounds, value \$2,113,041; hose, 4,648,733 pounds, value \$1,788,587; and packing, 1,756,328 pounds, value \$795,641. During the first six months of the present year there has been a decided advance in both quantity and value as regards the first two classes mentioned.

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# Need of Standardizing Motorbus Tires and Tubes

One Size Tire Standard Would Permit Interchangeability—Improved Tube Design a Necessity

TRANSPORTATION by motorbus, although of recent origin, has advanced rapidly in its development, but is still undergoing a process of evolution. This applies not only to the design of the chassis, which somewhat resembles yet must in many respects differ from that of a freight-carrying truck, but to such important accessories as tires and wheels.

There are 60,000 motorbuses in the United States, of which 31,100 are operated by independents, 3,250 by electric railways, 20,000 used by schools, and 1,500 in sightseeing service. In regard to tire equipment, it has been found that pneumatic tires should be used, both front and rear, with dual tires in the rear, and that all tires should be interchangeable. In this latter consideration lies one of the principal present difficulties.

F. D. Howell, vice-president and assistant general manager of the Motor Transit Co., Los Angeles, California, is authority for the assertion in the *Bulletin of the Society of Automotive Engineers* that sufficient study has not been given to tire equipment for motorbuses and stages, particularly to standardizing the product of different manufacturers.

Tires are classified according to their outer and cross-sectional diameters, yet many of the products of different tire manufacturers do not match. It is an imperative need that all motor-

the proper operating pressure the tube is like a toy balloon. Touch it with a pin point and a hole develops many times the size of the pin. After a few miles of service, that portion of the tube near the tire tread becomes so stretched that it takes a permanent set and remains "paper-thin" even after being deflated and removed from the casing. Such a tube is obviously not fit to go back into service.

Experience has shown that a tube which will just fill the casing before being inflated enough to stretch the rubber will give the longest life in motorbus service and can be replaced for further use after having been removed from the casing, as the tube is not greatly distended at operating pressure and is not easily punctured. In fact, if penetrated by a tack the rubber will tighten around the tack and prevent even a slow leak. Sometimes a nail extending  $\frac{1}{4}$ -inch inside a casing will not puncture a tube of this character.

Some standard 36 by 6 tubes are so short in respect to inner diameter that they will fit neatly into some 34 by 5 casings without buckling at the rim and give much more satisfactory results than 34 by 5 standard tubes.

Certain manufacturers are now experimenting with a tube designed to fit the casing without the aid of air pressure and hav-



*Bulletin of the S. A. E.*

THREE TYPES OF INNER TUBE THAT CAN BE USED WITH A 34 x 5-INCH CASING

The regular 34 by 5-inch tube at the left was not found satisfactory, since when filled with air but not under sufficient pressure to distend it only approximately 50 per cent of the casing's cross-sectional area was filled. The 35 by 6-inch tube in the center fits a 34 by 5-inch casing without buckling at the rim and has given much more satisfactory results than the standard 34 by 5-inch tube. The tube at the right is a 34 by 5-inch special oversize ring shape designed to fit the casing without the aid of air pressure and having the inner perimeter molded to fit flat against the rim.

bus tires of a given rated size be interchangeable, so that one car can assist another on the road in case of tire trouble. Companies operating motorbuses cannot be expected to carry a miscellaneous assortment of tires of different brands in order to assign different brands to different cars.

A single size of tire for a whole fleet of motorbuses, regardless of the weights of the different cars, is also desirable. Dual tires on the rear wheels have been of material assistance toward accomplishing this end. With a single tire standard some cars might be over-tired, but the slight resulting waste would be much more than offset by the advantage of interchangeability.

Inner tubes for motorbus tires also need further improvement. The tubes now furnished, when filled out with air, but not under pressure enough to distend them, fill only approximately 50 per cent of the cross-sectional area of the casing. When inflated to

ing the inner perimeter molded to fit flat against the rim. This, Mr. Howell believes to be a great advance in the art of tube design for motorbus tires, and he expresses the hope that a commercial product will shortly be on the market.

Wooden wheels have been unsuccessful in California as they dry out quickly and it costs a great deal to keep them in order. Cast steel wheels with the hubs cast in are very expensive to maintain, as it costs \$15 to \$17 each to fill in and replace the bearing races if the hub is damaged. Wheels cast without the hub so that any hub may be fitted to them are preferable. A crankcase-aluminum wheel of this type has been in use for a year or more with satisfaction. Troubles due to the use of dual rear wheels are being overcome by fitting them with two bearings designed so that the tire runs true and the air valves are accessible.

## What the Rubber Chemists Are Doing

### The Ultra-Violet Microscope in the Study of Vulcanized Latex Globules<sup>1</sup>

By Henry Green

NEW JERSEY ZINC CO., PALMERTON, PENNSYLVANIA

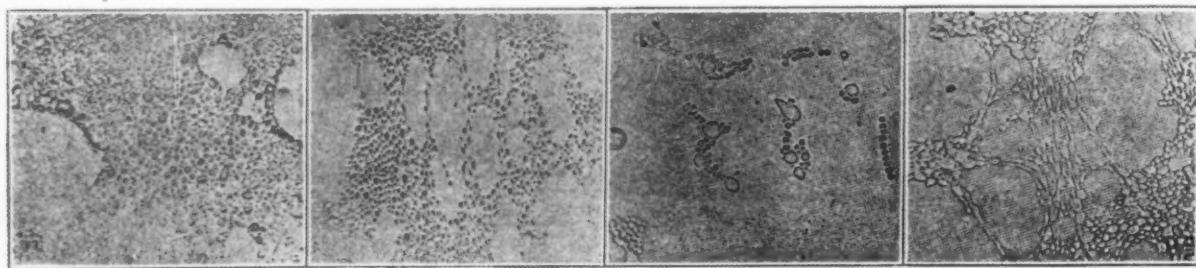
THE ultimate condition of the sulphur in vulcanized rubber—whether it is one of solution, chemical combination, or adsorption—is still an open question. Hence any new method of attack for the study of this problem should be of interest. With this idea in mind the present paper has been written.

Several years ago, when the author was developing a method for the microscopy of rubber, it was found impossible to obtain

globules are separated from one another and therefore do not form a continuous sheet upon drying. Vulcanization is carried out by subjecting the slide, on which the latex is fixed, to sulphur chloride vapor.

The latex itself is apparently composed of three types of globules suspended in the serum and, as received, stabilized with ammonia. The first type comprises the large well-known pear-shaped globules. The second type of globule is much smaller in diameter and practically round. The third type is nearly colloidal in size and best seen by stopping down the substage diaphragm.

Noteworthy effects are produced on small amounts of latex by dispersing in ammonia and squeezing the globules under a



1—Sheet of Rubber Latex One Globule Deep

2—Stretched Sheet of Rubber Latex Showing Elastic Connecting Links

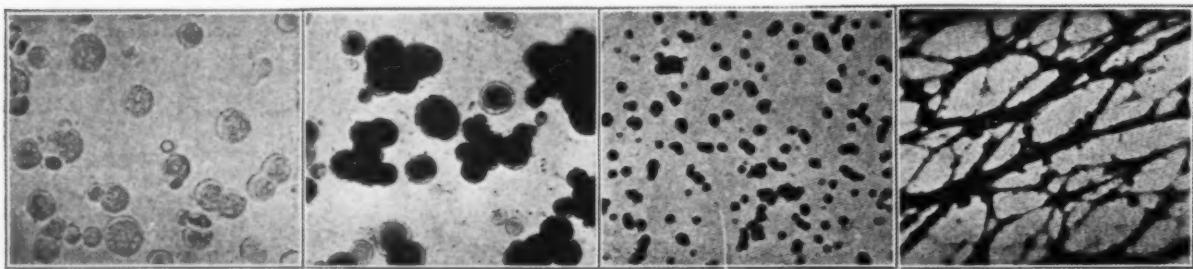
3—Squeezed Globules Showing the Three Types

4—Squeezed Latex Showing Connecting Links Similar to Those Formed Upon Stretching.

photomicrographs with the Zeiss ultra-violet microscope of vulcanized microsections because such sections were not transparent to wave length  $0.275 \mu$ . It was further discovered that unvulcanized sections were quite transparent to this wave length. These facts at once suggested a novel method for studying the disposition of the sulphur in vulcanized rubber.

The latex globule is particularly amenable to the microscopic study of vulcanization. The latex must be diluted with distilled water so that it becomes possible to spread it out into a layer only one globule in depth. This operation is carried out on a

cover glass. This process brings out the three types distinctly (Figure 3). In the background are countless numbers of the colloidal type of globule. A number of the pear-shaped globules are present and a still larger number of the intermediate type. This intermediate type appears in chain formation, probably due to the fact that the globules have been squeezed, one at a time, from the interior of the pear-shaped globule through its small end. There is also some evidence that this intermediate type of globule forms a lining on the inside wall of the parent globule while the remaining space in the parent globule is filled with the col-



5—Unvulcanized Ficus Elastica Globules Showing Internal Structure

6—Vulcanized Ficus Globules. From the Clear Edges It Is Probable that the Outer Shell of the Globule Has Not Retained Any Sulphur.

7—Vulcanized Hevea Globules

8—Vulcanized Connecting Links

quartz microscope slide, which is then allowed to dry. The sheet of latex thus formed can be examined as it is, or it can be loosened, stretched, fastened down again on the slide, and then studied. Following this plan both before and after vulcanization is the best procedure for obtaining interesting results. (See Figures 1 and 2 for sheets before vulcanization.) Or, if desired, the latex can be diluted to such an extent that the

colloidal type particle and, also in addition, a liquid substance.

Whether or not this conjecture is correct, it undoubtedly is a fact that neither the chain group nor the excessive number of colloidal type globules are present before the large globules are squeezed. In order that this statement should not be confusing, it must be borne in mind that the three types of globules are always present, but that squeezing creates an abnormal number of the colloidal type, while at the same time the medium-sized type is produced in chain groups where previously it appeared only as

<sup>1</sup> Presented before the Division of Rubber Chemistry at the 69th Meeting of the American Chemical Society, Baltimore, Maryland, April 6 to 10, 1925.

detached globules. Squeezing also produces an effect similar to that obtained by stretching thin sheets (Figure 4).

Realizing that the latex globule is perhaps complex in structure, the question arises as to what part of that globule takes possession of the sulphur during vulcanization. In the case of the *Ficus elastica* we have a latex globule that is not only large enough to study with ease, but in addition has elastic properties and is capable of being vulcanized. Figure 5 shows the *Ficus* globules before vulcanization, and it will be observed that a decided structure is present. In Figure 6 the globules have been vulcanized and it is apparent that the sulphur has passed through the outer shell and fastened itself upon the inner nuclear structure. It is tempting to draw an analogy and arrive at the conclusion that the *Hevea* globule vulcanizes in a similar manner. Unfortunately the *Hevea* globules are so small that direct observation, similar to that given the *Ficus* globule, reveals but little. Figure 7 shows that the *Hevea* globule takes up the sulphur uniformly, except at the small end of the pear-shaped particles where there seems to be a slight deficiency in sulphur. It will also be noticed that all the globules do not take up the sulphur with equal ease.

When latex globules dry in contact with one another they adhere tenaciously; consequently, when a thin sheet of dried latex is stretched the globules will be found connected with elastic links that evidently come from the surface of the globules. If these links were simply a viscous material with a high surface tension and not elastic, then no increase would be manifest in resistance to stretching as the breaking point is approached. As such a resistance is encountered, it follows that these connecting links are elastic and, if composed of a single phase, then the property of elasticity must reside in the molecule and cannot be a surface tension effect, or at least cannot be one due to a complex two-phase condition. Hence a careful study of these connecting links might not only tell us something of vulcanization and the structure of the latex globule, but also throw some light on the property of elasticity.

On account of certain experimental difficulties that have not yet been overcome, the first results in an attempt to study these elastic links have not been completely successful. Figure 8 shows that the links are vulcanizable, but does not show clearly whether or not the sulphur is uniformly distributed. If we are dealing with a single phase substance it is reasonable to suppose that the sulphur distribution would be uniform while on the other hand a two-phase material might or might not show uniform distribution. The only definite information that can be derived from Figure 8 is that the outer shell of the latex globule takes up sulphur. In addition, it can be seen that the remainder of the globule—that is, the portion that does not constitute the elastic links—is also deeply vulcanized, from which it seems that the sulphur penetrates to a considerable depth, if not the entire distance.

Another interesting point brought out in working with the ultraviolet microscope is the fact that the sulphur of carbon bisulphide does not absorb wave length  $0.275 \mu$ , but absorption does take place as soon as any free sulphur is dissolved in the carbon bisulphide. Considerably more investigation, however, is necessary before it can be decided from this fact that the absorption of wave length is  $0.275 \mu$  by vulcanized rubber is due either to dissolved or adsorbed and not to chemically combined sulphur.

## Effects of Oils on the Vulcanization of Rubber<sup>1</sup>

By S. Pickles and H. Turner

Mixtures of rubber 90, sulphur 10, with and without the addition of 2 parts of rape-seed oil, palm oil, cottonseed oil or light paraffin lubricating oil were given increasing cures and the quality was compared by determining the ultimate elongation, tensile strength and free sulphur. The free sulphur values, which at a

given cure were nearly the same for all mixtures, indicate that in no case did the oils either accelerate or retard the rate of vulcanization. On the other hand, for a given cure the stress was lower at 500 per cent elongation for the mixtures containing oil, indicating that the oils had a softening action on the cured rubber. No essential difference in this respect was evident among the individual oils. The results probably hold true only for mixtures containing no ingredient other than rubber and sulphur, for experiments show that with whiting or litharge present palm oil accelerates the rate of vulcanization, perhaps because of the formation of oleates from the oleic acid in the oil.

## The Effect of Milling on Rubber Stocks

By Ellwood B. Spear and Robert L. Moore

This paper, read before the Division of Rubber Chemistry meeting of the American Chemical Society at Baltimore, Maryland, April 6-10, 1925, as a contribution from the development laboratories of the Thermatomic Carbon Co. was released by courtesy of *Industrial and Engineering Chemistry*.

At the September meeting, 1923, of the American Chemical Society the authors read a short paper before the Rubber Division on "The Effect of Overmilling and the Duration of the Curing Time on the Quality of Rubber Compounds." This work has not been published up to the present time, because new experimental evidence pertinent to the question has been accumulating constantly in our laboratories. Moreover, work by the Physical Testing Committee of the Rubber Division, a report of which was read at the Washington meeting in April, 1924,<sup>2</sup> showed clearly that the temperature at which the milling is carried on, is an important factor. In this article is submitted experimental evidence to show that: (1) Long cold milling does not give so good pure gum stocks as short cold milling. (2) Long hot milling does not deteriorate pure gum stocks so much as long cold milling. (3) The best pure gum stocks, other things being equal, are made by short hot milling. (4) The tensiles and elongations of heavily compounded carbon black stocks are greatly improved by hot milling while the pigments are being incorporated into the rubber. (5) The increased tensiles and elongations are probably due to a better distribution of the carbon black.

## Method of Milling

The stocks were mixed on a small experimental mill. The temperatures were controlled as closely as possible by steam or cold water running through the rolls. The temperatures were taken by cutting off a portion of the stock and wrapping it around a thermometer. Two or three successful portions were always employed and the highest readings of the thermometer recorded. The rubber was put on the hot front roll and the desired temperature obtained before the rolls were closed to form the bank. As soon as the rubber ran around the front roll in a smooth sheet the mineral rubber, carbon black and zinc oxide in succession were milled in as rapidly as possible. After these had disappeared the stock was mixed by rapid cutting on the mill for 5 minutes. Where the milling was carried out at high temperatures the stock was cut off or the front roll was backed away and the stock and front roll brought to a temperature of 70 degrees C before the sulphur and accelerator were added. The back roll was chilled cold. The sulphur and accelerator were next milled in and the stock again thoroughly mixed by rapid cutting for 5 minutes. We find our stocks test much more uniformly when such precautions are carried out with regard to thorough mixing. When stocks were milled for a long period of time the sulphur and accelerator were never added until the

<sup>1</sup> *Revue Générale de Caoutchouc*, 1, No. 6, 17-22 (1924).

<sup>2</sup> *THE INDIA RUBBER WORLD*, October 23, 1923.

<sup>2</sup> *THE INDIA RUBBER WORLD*, May 1, 1924, 514.

last of the run and then only after the temperature had been brought to a definite standard for all stocks to be compared to one another. This standard was never over 70 degrees C, and was sometimes lower as in the case of stocks 800 and 801.

TABLE I.—FORMULAS  
Stock Numbers

	800	835	1011	1015	1018	966	1071
	801	836	1012	1016	1019	1041	
Pale crepe	91.7	87.0	90.82	61.1	60.0	73.5	68.0
Carbon black A	...	...	...	10.0	20.52	19.06	25.11
Carbon black C	...	...	...	20.0	...	...	...
Zinc oxide	4.43	4.3	5.09	4.3	15.08	4.33	4.02
Mineral Rubber	...	...	...	2.0	1.76	...	...
Sulphur	2.29	8.7	3.18	2.14	1.62	1.84	1.70
Diphenylguanidine	1.58	...	0.91	0.46	1.02	1.27	1.17
Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The formulas of the stocks employed are given in Table I. Here it will be noted that we have investigated so-called pure gum stocks unaccelerated, 835 and 836, similar stocks accelerated 800, 801; 1011, 1012 and 1013, where the sulphur accelerator ratios are different, and four different types of high carbon black stocks. In each instance the best technical cure only is reported.

Typical results are shown in Table 2.

TABLE II.—TESTS

Stock No.	Time of milling Minutes	Temp. of milling C.	Cure min.	Pounds		Per Cent Elonga-	REMARKS
				Pounds steam	Tensile at 40 min.	at Break	
800	15	50-55	45	3973	700		Raw stock very tacky.
801	80	50-55	45	3250	700		
835	16	70	150	2133	793		
836	90	70	150	1377	705		So soft that tests were difficult. Raw stock very tacky.
1011	15	100-102	75	4462	697		
1012	90	100-102	75	4290	738		
1013	90	55-65	75	3910	733		
1015	30	108	60	4136	676		
1016	90	105	60	3746	650		
1017	90	60-70	60	3670	680		
1018	Minimum	105	35	5000	720		
1019	90	105	45	4805	686		
1020	90	65-70	45	4504	718		
966	Minimum	105	45	5117	706		
1041	Minimum	65-70	45	4488	720		
1071	Minimum	105	45	5047	735		

The minimum time is the shortest time necessary to mill in the pigments. This varies from 20-40 minutes.

In the case of the pure gum stocks, long cold milling causes some radical change to take place in the rubber itself. This change has recently been investigated by means of the ultra-microscope.<sup>2</sup> Stock 1012 confirms the contention of the Physical Testing Committee<sup>2</sup> that long hot milling does not injure the rubber so much as if the operation were carried on at a lower temperature. Ultra-microscopic observations and viscosity determinations would doubtless be instructive on this point.

The injury to the rubber in case of cold milling is doubtless due to the increased resistance of the stock to deformation. If we may consider rubber as behaving like a two or multicomponent system<sup>3</sup> in which there is some sort of a structure suspended in a matrix of more plastic material, it is conceivable that this structure would be most easily destroyed when the plasticity of the matrix is not great, that is, at low temperatures.

In the consideration of black tread stocks two distinct questions are involved: the injury to the rubber by long milling on the one hand and the effect of temperature on the distribution of

<sup>2</sup> Klein and Stormberger, "Colloid Problems and the Rubber Industry," *Kolloid-Zeitschrift*, December, 1924, 362-366; *The India Rubber World*, February, 1925, 281.

<sup>3</sup> Spear, "Colloid Symposium Monograph," University of Wisconsin, 1923; *The India Rubber World*, October, 1924, 18.

the carbon on the other. With respect to the first question doubtless the same conclusions may be drawn as in the case of pure gum stocks. With regard to the second question, we were long unable to understand why there should be such a wide variation in the tests on different batches of stocks made of the same materials. Since we have adopted hot milling and more rigid temperature control our experience has been that tests not only on the same sheet, but also on different batches, run very uniformly. For instance, there was less than 2 per cent difference in the breaking tensiles at the technical cure between any of the four test pieces cut from stock 1071, and less than 3 per cent in the elongations. We believe the high quality and uniformity are due largely to the excellent distribution of the carbon blacks. It is certainly to be expected that carbon black will form a more nearly homogeneous colloidal suspension in rubber when the plasticity of the latter is high. In a paper entitled "The Distribution of Carbon Black in Rubber Stocks," to be published shortly, we deal with microscopic observations on thin sections of these stocks.

## Chemical Patents

### The United States

VULCANIZED RUBBER PRODUCT AND PROCESS. A process for vulcanizing rubber consisting in the use of the product of reaction of bromine upon an aromatic substituted thiourea as an accelerator.—Giuseppe Bruni, Milan, Italy. United States patent No. 1,546,713.

RUBBER VULCANIZATION. A vulcanized compound of rubber or similar material having as an ingredient before vulcanization a substance having the formula—RN<sub>2</sub>—C<sub>2</sub>—NHR.—Morris L. Weiss, Newark, New Jersey, assignor to Dovan Chemical Corporation, Wilmington, Delaware. United States patent No. 1,546,876.

VULCANIZED RUBBER PROCESS. The process of producing a vulcanized rubber which comprises incorporating into rubber a small amount of dipiperidyl base and heating the resulting product with a vulcanizing agent to effect vulcanization.—Max Bögemann, Elberfeld, Paul Imhoff, Leverkusen-on-the-Rhine, and Wilhelm Schepiss, Wiesdorf-on-the-Rhine, Germany, assignors to Farbenfabriken vorm Friedr. Bayer & Co., Leverkusen, Germany. United States patent No. 1,547,554.

### The Dominion of Canada

VULCANIZATION OF RUBBER AND PRODUCTS. A method of accelerating the vulcanization of rubber and the product resulting from heating rubber, a vulcanizing agent and mercaptothiopholine.—The Goodyear Tire & Rubber Co., assignee of L. B. Sebrell, both of Akron, Ohio. Canadian patent No. 251,758.

SPONGE RUBBER. A method of producing sponge rubber, containing free soap in its pores, which comprises forming an aqueous paste containing rubber, sulphur, soap and perfume, introducing the mass into a mold and subjecting it to vulcanization.—The Research Incorporated, Boston, assignee of W. B. Pratt, Wellesley, both in Massachusetts. Canadian patent No. 252,420.

### The United Kingdom

COMPOUND FABRICS. Sheets of material such as paper, cloth, asbestos, pasteboard, wood, vulcanized fiber, rubber, metal, and leather are united by a synthetic gum, resin gum, or shellac varnish, the composite material being faced with a paper, cotton, or other fabric bearing a colored design.—Loco Rubber & Waterproof Co., Ltd., W. H. Nuttall, and G. W. James, Anniesland, Glasgow. British patent No. 234,159.

PAPER, ETC. Paper, pulp board and pulp articles are treated with a solution of latex stabilized with ammonia or other alkali and then dried in such manner as to solidify the latex solids into a dried irreversible gel. A vulcanized product may be obtained by incorporating colloid sulphur with the latex mixture, or better, by using ammonium sulphide or polysulphide as the stabilizing agent.—S. G. S. Dicker, 20 Holborn, London, (Rubber Research Corporation, 185 Devonshire street, Boston, Massachusetts). British patent No. 234,245.

DYES FOR RUBBER. Monago dyes are especially suitable for dyeing rubber since they are not affected by the vulcanizing process.—Chemische Fabrik Griesheim-Elektron, Frankfort-on-Main, Germany. British patent No. 235,169.

### Germany

416,877 (April 14, 1923) Method of making soft and hard rubber. Firma Technische Chemikalien Compagnie, G. m. b. H., Halle, a. d. S.

416,878 (July 11, 1920) Method of reclaiming rubber. Cyrus Field Willard, San Diego, California. Represented by Dr. A. Meitern, Berlin S. W. 48.

### SEMINOLE CLAY

Seminole is a washed, dried and finely pulverized Georgia clay of good color and extra fineness. Seminole mills into rubber easily and quickly, gives high tensile, high abrasion resistance and a stress strain curve of medium slope. It is a good clay for use in mechanical goods, footwear, air bags and druggists' sundries. It is shipped in paper bags from Gordon, Georgia.

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## Typical Rubber Service Laboratory

In 1916 the use of accelerators became general and the need of rubber manufacturers for comprehensive and authoritative help in the choice and practical application of organic accelerators was evident. Recognizing this need, Roessler & Hasslacher Chemical Co., on August 17, 1917, opened a rubber service laboratory under the direction of C. S. Williams, an experienced rubber chemist.

In the intervening years much useful knowledge derived from thousands of tests has been given to the rubber trade regarding the behavior of the commonly used accelerators under every practical working condition. Thus manufacturers have benefited without cost by the labors of an expert staff working with every scientific facility.

The rubber laboratory is one division of a general research department occupying an entire building in connection with the chemical plant at Perth Amboy, New Jersey.

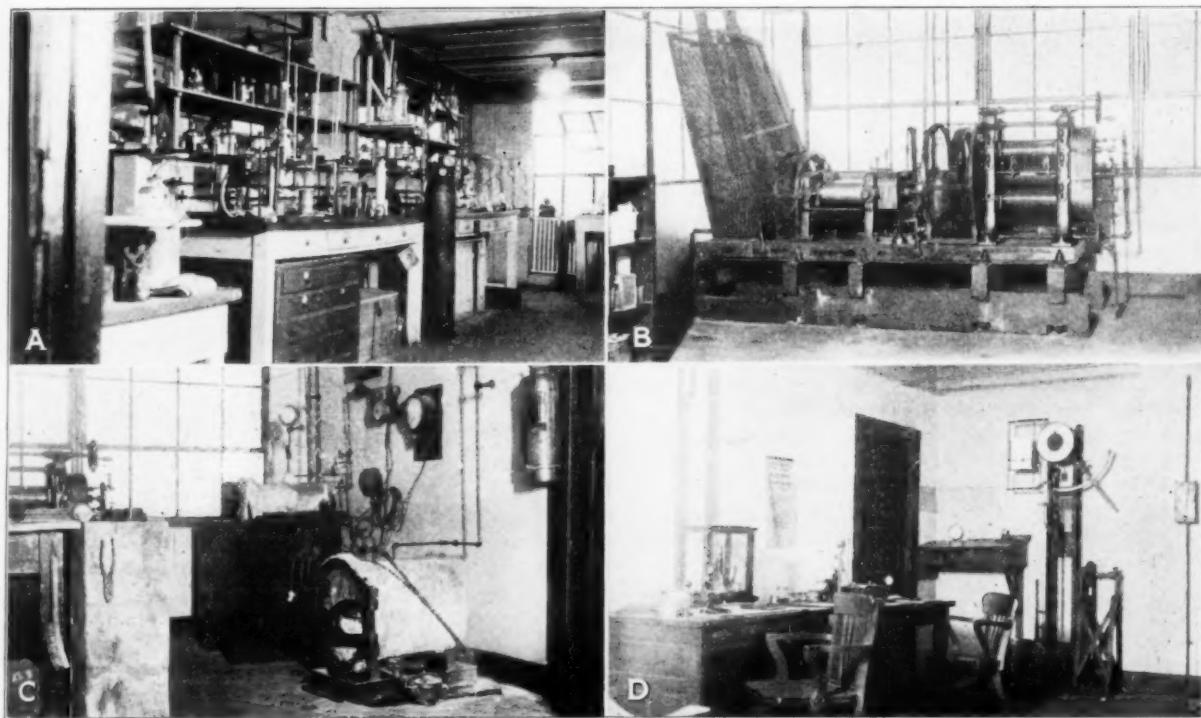
With regard to the rubber service division it should be noted that its equipment as shown in A of the group picture is complete

specific for the manufacturer interested, the laboratory has from time to time published complete information on the behavior of some accelerator products under widely varying conditions. The first of these articles was on the use of hexa, formaldehyde aniline and aldehyde ammonia.

Information has been issued to rubber manufacturers on the action of accelerators in the presence of high and low percentages of zinc oxide over a wide range of cures, and on the relation between sulphur and accelerator content and the state of vulcanization.

Graphs have been published at intervals showing the progress of vulcanization with all the good common accelerators when used in high and low zinc stocks, and also in reclaims. These curves and descriptive text are issued as a loose leaf manual and is a recognized accelerator text book for the rubber manufacturer.

Mention should be made of the work in rubber testing resulting in the gift to the rubber trade of an improved device for automatically recording the stress-strain relation of a sample of rubber



Views in the R. & H. Rubber Service Laboratories

for the analysis of materials of all kinds. The machinery for mixing and calendering rubber stocks is pictured in B of the group. Some of the curing apparatus is shown in C. The complete vulcanizing facilities include apparatus for cures in pressure molds, open steam, hot air, superheated steam, also cures in inert gases such as nitrogen, carbonic acid gas, etc. For testing the tensile properties of cured samples the latest improved equipment is employed, as seen in picture D.

This laboratory has solved a wide range of problems relating to the manufacture of such goods as rubber sponges, hard rubber articles, matting, transparent goods, inner tubes, automobile tires, and stocks to meet specific requirements. Besides this work, spe-

under test whereby one machine operator and all arithmetical calculations are eliminated. Another noteworthy contribution is a chart for compounders showing the characteristics of crude rubber blends and the possibility of substituting them for pure smoked sheets in the reduction of cost without loss of quality.

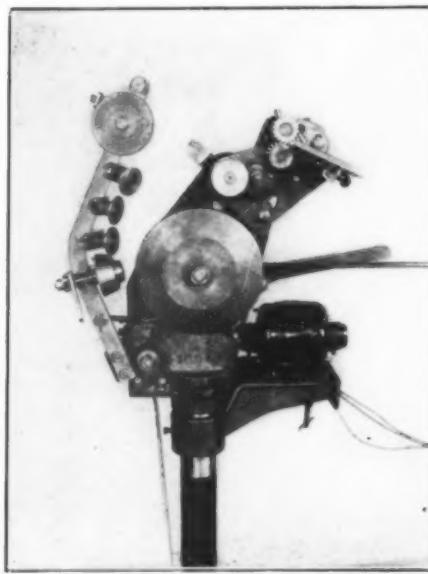
In addition to the special studies mentioned the laboratory checks the quality of every lot of accelerator shipped from the plant to ensure uniformity.

Much of the success of this rubber service department is due to the exceptional attainments of its personnel, who are intimately acquainted with factory practice and know rubber from the plantation to the finished article.

## New Machines and Appliances

### Improved Bead Flipper

THE improved bead flipping machine here pictured is of the crimper type. It is motor driven and furnished with a built-in motor and starter. The machine will flip beads in

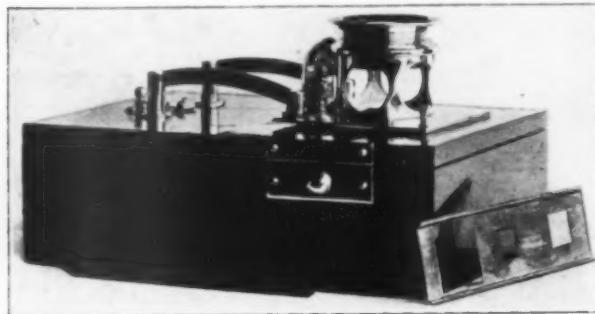


Utility Crimper Type Bead Flipper

roll it cuts the filler into lengths to fit the tire. Both filler and fabric are spliced at different points, thus reinforcing the bead structure. The machine equalizes the tension on cable beads as the flipper strip is applied. The feed table is adjustable for any width of fabric and provision is made for any overlap of cover desired.—Utility Manufacturing Co., Cudahy, Wisconsin.

### Cloth Counting Glass

The instrument here pictured is an improved form of pick counter for inspection of fabrics. The base of the instrument is a two compartment box, one of which divisions houses a dry cell



Electric Lighted Pick Counter

electric battery with switch connection outside on top, the other compartment, under the lens, contains a reflector with a central electric bulb. Light from this reflector is deflected upward through a glass surface throwing into bold relief the structure of the

inspected fabric as it is held smooth under the base of the lens support.

The bottom of the lens support is arranged to hold a metal slide containing apertures of various dimensions. These enable the operator to set apart any area of cloth he desires to examine, and aid him in counting threads. Two slides are provided with each case, containing, in all, eight holes of different sizes.

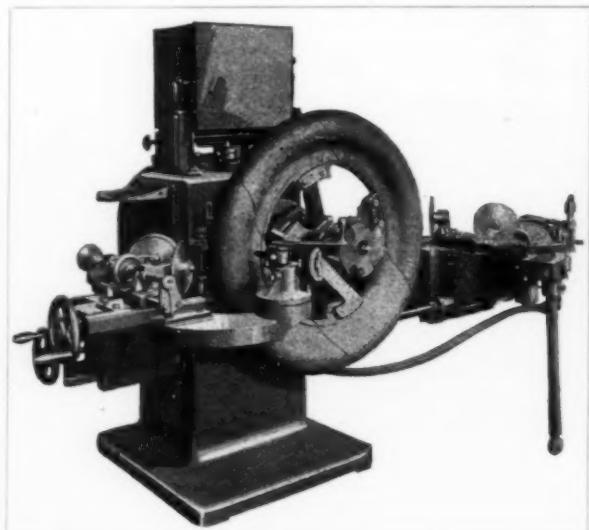
One of the important features of the instrument is the adjustable lens by which the focus can be changed to suit any eye. The length of focus is adjustable to a distance of one-half inch. A double French lens is used supported in a hinged frame to be swung back for placing the sample.

In addition to the light located in the compartment under the sample a second light is located just back of the lens. It is of value when the finish of the cloth is to be examined under a side light.

The instrument box measures about  $7\frac{1}{4}$  by  $4\frac{1}{4}$  by  $2\frac{1}{4}$  inches, in mahogany finish and will be greatly appreciated by designers of fabrics and in rubber laboratories where fabric constructions are checked to specifications.—James Speed & Co., Agents, 80 Federal street, Boston, Massachusetts.

### Cord Tire Building Machine

One of the swiftest operating cord tire machines is the new model here pictured. It is operated by one man, driven by a single 2-horse power motor and will make tires of every size either in cord or fabric. It uses the banded process



The de Laski-Thropp Pace Maker

which is very generally approved in American tire plants. By this process the fabric is plied into an endless band form of predetermined circumference so that the tire maker has a very positive control of the stretch being applied. While only one man operates the new machine its capacity is materially larger than existing standards. It is stated that one operator produced 115 cord tires, 30 by  $3\frac{1}{2}$ , in a day's work. A most important feature is the ability to shift quickly and with little preparation

from one size tire to another. Simple substitution for the core being used of one of different size is the only adjustment necessary.

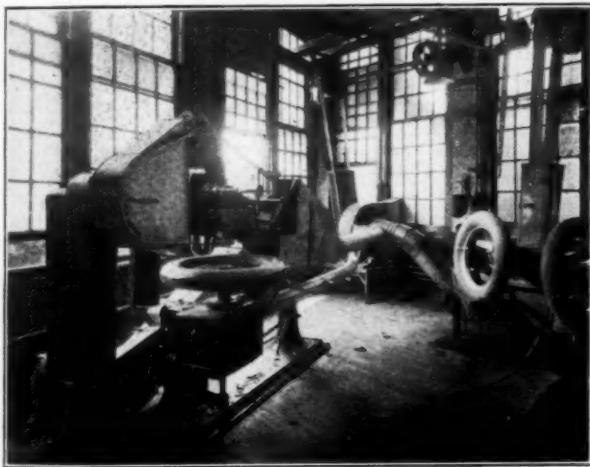
The stitchers are mounted on an arcuate slide, so that any angle can be obtained instantly. When the angle of the stitcher is changed it does not affect the edge of the stitcher in any way—therefore back-feeding of the carriage is unnecessary. The complete stitching of the fabric, even back of the bead, is done automatically by the machine, no hand work being necessary at any stage of the process.

The machine can be operated by standard motor or other drive having the maximum equivalent of 2 h.p. An air operated friction clutch and an air operated brake are incorporated in the machine.

The chief advantage of this machine is that it is a universally adaptable tire builder taking all of the special building cores now being used by the foremost tire factories and making all size tires including those most in demand, namely, high pressure cords and balloons.—de Laski-Thropp Co., Trenton, New Jersey.

#### Machine for Cleaning Air Bags

In the June issue of this paper mention was made of the air bag cleaning machine which is here pictured as installed in a large tire manufacturing plant. The machine is here shown with all the guards and dust exhausts attached, also a bag in position with one side cleaned. While this machine is belt driven by a motor back of the machine the newest type is mounted on the same base with the motor and driven direct with silent chain drive. The main spindle revolves at 1,200 r.p.m. with a 10 h.p. motor of the same speed.



Air Bag Cleaning Installation

The bag is supported for grinding in a revolving disk, and the cleaning is done by an endless abrasive belt which is made to conform to the half contour of the bag by means of a flanged idler and a rubber covered roller.

The cost of cleaning per bag on sizes from 3 to 8-inch section is approximately 10½ cents per bag. The capacity of the machine is from 75 to 100 bags a day.—The New Haven Sherardizing Co., Hartford, Connecticut.

#### "Wedgtite" Pipe Hangers

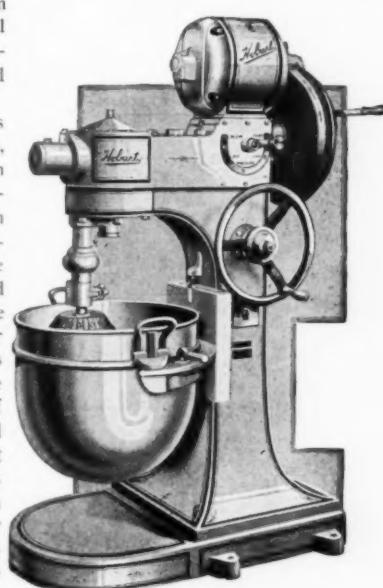
A patented pipe hanger comprising a hook and a wedge is made in 3 types which adapt them to be clamped to any structural shape if its flange is not less than one-eighth inch thick at the edge, and not more than three-eighths inch thick three-quarters

of an inch from the edge. These hangers require no drilling, are quickly and easily installed with no other tool than a hammer, and offer many practical advantages.—Crouse-Hinds Co., Syracuse, New York.

#### Electric Cement Mixer

There are frequently occasions in rubber plants when it is necessary to mix small amounts of special cement for manufacturing or experimental purposes. The illustration represents an electrically operated mechanism designed for general mixing, that could undoubtedly be adapted to cement making.

This machine is built in several sizes, of rugged construction and completely enclosed for protection against dust and dampness. The bowls are interchangeable and vertically adjustable in the machine. For food mixing various forms of beaters are supplied, several of which are well adapted for stirring in making rubber cement. This equipment has been found practical for such work on a manufacturing scale.—The Hobart Manufacturing Co., Troy, Ohio.



Hobart Mixer

#### Across-the-Line Starter

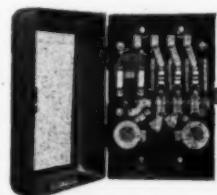
The first of two new automatic starters for alternating current motors is here pictured with cabinet open.

Both starters have a three-pole switching mechanism with butt contacts of an improved design that insures long service and permits easy renewal of the contacts. The switching mechanism, terminals and overload devices are mounted on a slate panel which is enclosed in a steel cabinet provided with knockouts for conduit wiring, and the entire construction is exceptionally compact, the cabinets being only 13½ inches high by 9 inches wide by 6 inches deep. The cabinets are arranged for convenient mounting on wall, post or machine.

One type of these new starters, that here illustrated, is equipped with thermal overload cutouts to provide protection against overload, but which carry the starting current for a sufficient period to permit starting of the motor and to take care of temporary overloads. This starter is for use with single phase and standard polyphase squirrel-cage motors of maximum rating of 7½ h.p.; and 10 h.p. for internal starter squirrel-cage motors, 440-550 volts.

These starters can be operated by means of push-button master stations, or they can be used in connection with float switches, pressure-actuated switches, and similar single-pole switching devices.

The most exhaustive tests have proved these starters to be extremely durable as well as positive and accurate in action.—The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin.



### Hydraulic Crude Rubber Shear

A very effective and simple adaptation of a hydraulic press for the purpose of slicing bales of crude rubber is here represented. A powerful wedge-shaped blade is bolted to the underside of the head of an ordinary press. By the upward pressure of the ram a bale of rubber resting on the lower platen is pushed steadily



**Southwark Rubber Bale Cutter**

against the cutting edge and is cut in pieces convenient for cracking or milling.

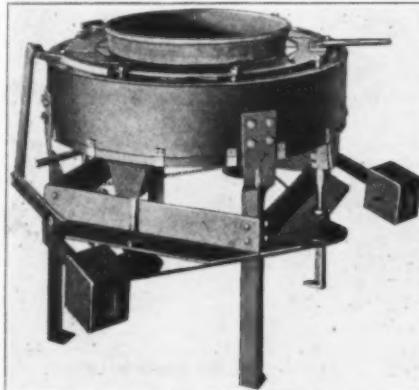
The press is of 60 ton capacity, 10-inch ram with 22 inches stroke. It is indispensable where baled or massed rubber is cut in large amounts because of its economy and convenience.—Southwark Foundry & Machine Co., Philadelphia, Pennsylvania.

### Vacuum Shaper for Flat Band Tires

In the flat band method of cord tire building the uncured endless tire band was shaped to fit the curing mold by inflation pressure of an air bag placed back of the tire band. This process of shaping the band is now accomplished by applying suction to its outer surface by means of the vacuum shaping box which is here pictured.

The operation of the vacuum box is extremely simple. A flat built tire is set horizontally in the central opening of the box, the vacuum line valve is opened and the tire is promptly drawn outwardly into the box. The

act of drawing the band into the tire shape causes the beads to move relatively towards each other. A curing bag is then doubled and snapped into the formed tire. With the curing bag inserted the lid of the vacuum box is swung open and the bagged tire removed and rimmed ready for the curing mold.—Paul A. Frank, Permanent Title Building, Akron, Ohio, Licensing Agent for The United States Rubber Co.



**Vacuum Shaping Box**

### Spring Balanced Hydraulic Relief Valve

The component parts of a self-contained spring-balanced hydraulic safety relief valve are here illustrated. The body of the valve is bronze; the lower end and seat of hardened non-rust steel, and the check of monel metal. The compression spring is of extra large proportions and of a length sufficient to allow the maximum opening of the valve when the check is exposed to the pressure at which the valve relieves. A brass lock-nut, which can be sealed with a paper seal, after adjustment protects against readjustment without breaking the seal. The resiliency and extra size of the spring with the special design and construction of the other parts assure quick and positive operation and long life to the whole assembly.—John Robertson & Co., 121 Water street, Brooklyn, N. Y.

**Robertson Hydraulic Relief Valve**

### Improved Steel Calender Shell

Steel calender shells when first introduced were provided with short fabric aprons serving to receive and start smoothly the first end of the goods to be wound on the shell. The custom of using the apron has been so generally discontinued that the makers of the Universal calender shell have changed their standard construction from the grooved apron pattern to the butt seam design. A further reason for adopting the butt seam shell construction is that it affords the same strength as a seamless tube to meet every condition where unusual loading or handling is practiced.

Where extra heavy duty requires the use of an apron, grooved shells are made with laminated body in which the inner shell is, in effect, a seamless tube with all its strength against collapse, and laminated with an 18 gage galvanized outer body. This construction permits formation of the apron groove without depending on rivets alone to keep the aperture open.—W. F. Gammeter Co., Akron, Ohio.

### Machinery Patents

#### The United States

**1,546,817 TIRE RIMMING PRESS.** This press combines the use of a crossarm table resting on the upper end of an elevator stem, and swinging arms extending upward through radial slots in the table arms. The latter arms have hooks on their upper ends and counterweights on their lower ends for swinging the arms outward to automatically engage and clamp the rim rings of a tire on the table when the latter is elevated. Flexible connections between the upper ends of the swing arms and the centers of the table pull the arms inward to clear the rings when the table is elevated.—Alexander Adamson, assignor to The Adamson Machine Co., both of Akron, Ohio.

**1,546,904 WASHER-PLACING MACHINE FOR RUBBER HEEL MOLDS.** This is a complete machine for controlling the discharge of washers from a large receptacle into several adjustable hoppers. From the latter the washers pass to different series of washer delivering fingers by which the washers are guided to position on the pins of the heel molds.—Julius H. Kintzele, St. Louis, Missouri.

**1,548,052 MACHINE FOR FORMING ARTICLES OF FABRIC AND RUBBER.** This is a cutting machine designed to construct sheets from narrow strips of fabric set on end and united by intermediate layers of rubber. The finished product enters into shoe soles, etc. Layers of rubber-coated fabric are fed into the machine and cut into strips of proper width. These are moved by the cutting blade at an angle to the original plane of the layer and are packed into a channel so that they adhere to form the length of right angularly arranged fabric strips which issue from the machine.—Harvey F. Maranville, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

## Valve

spring-balanced valve body of the vulcanized non-rust check of the check of the valve. The construction is of extra sections and of sufficient to allow maximum opening of the valve when the valve is closed to the which the valve is closed. A brass valve which can be used as a paper seal, the valve protects the readjustment of the valve, sealing the valve and the resiliency and the spring special design of the valve assure quick operation and the whole valve is made of brass. — John & Co., 121 St. Brooklyn, N. Y.

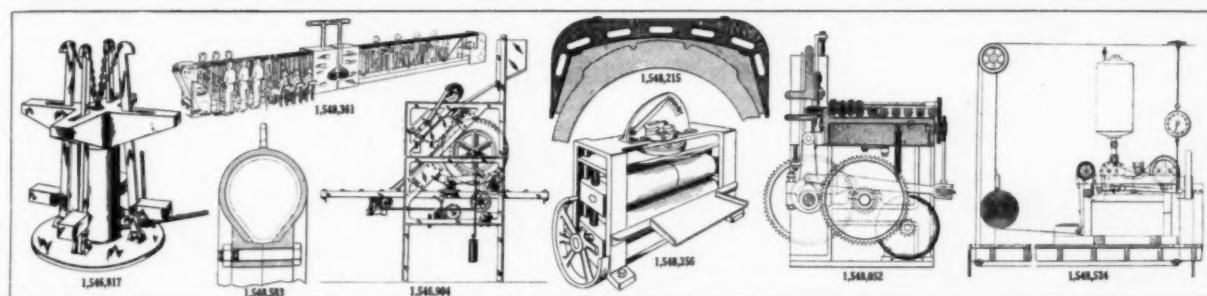
provided with which the first form of using the makers of the first construction design. A construction is that will meet every need.

grooved shell is, in collapse, and is constructed depending on diameter Co.,

the use of and swinging. The latter in their lower end clamp the shell. Flexible wire centers of the table is the same Co., both

BER HEEL discharge of. From the fingers by heel molds.—

FABRIC construct sheets made of proper material to form the original shape from the F. & Rubber



1,548,215 REPAIR MOLD. This mold with rubber matrix is designed to provide a form of heater for vulcanizing tire repairs by radiating heat of uniform intensity. It is adapted to repair heavy large size pneumatic tires by distributing heat uniformly and to equal degree throughout their numerous plies, heavy side walls and treads.—Clyde M. Semler, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,548,356 TREAD-APPLYING MEANS. This is a stretching mechanism comprising two calender or compression rollers through which the rubber tread strip is passed serving to yieldingly compress it before it is drawn onto the carcass by the rotation of a tire building core. The tread is thus stretched by the amount of compression applied.—Charles H. Desautels, Springfield, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,548,361 TUBE SPLICING. In this invention control is secured over the important time element involved in the preparing and vulcanizing inner tubes in the process of curing them into endless form. The unspliced tubes, supported with ends hanging, on a conveyor pass the operators arranged on opposite sides of the conveyor, who buff and cement the tube ends. From the cementing operators the tubes are conveyed through a drying chamber from which they emerge ready for the splicing operators. By thus controlling the time of each step of the splicing process and presenting the tubes individually and successively from one operation to the next the difficulties arising from blooming and condensing of moisture on the cement are obviated.—John Grennor, Jr., assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,548,524 MACHINE FOR COATING FABRICS. In this machine provision is made for indicating the tension on the fabric in order to secure uniformity of coating. The thick viscous coating material contained in a tank is expelled by air pressure and applied to the fabric in the angle or valley in which the presser roll revolves. The tension of the cloth is indicated by the reading on the spring balance scale, and is regulated by adding weights to the end of the brake-strap where the coated fabric descends to pass on to the wind-up roll.—D. D. Frithingham, Salem, and R. U. Sawyer, Winchester, assignors to Sawyer Products Co., Watertown, all in Massachusetts.

1,548,583 INNER TUBE MANUFACTURING APPARATUS. The object of this invention is to vulcanize the tube in the shape it will assume when in use both with respect to circular form and cross section. An uncured inner tube is spliced in endless form, a valve supported by a patch is inserted in its inner circumference. It is then inserted into an endless drawn metal mold of pear shaped cross-section with open inner periphery. When in this mold the tube is held in place around the inner opening by a pair of clamping rings which hold together over the edges of the mold. Next the tube is inflated at 10 pounds air pressure and cured suspended in an ordinary vulcanizer.—James W. Devine, Newark, New Jersey.

1,545,831 Tire Repair Tool. Harry R. Hirst, Trenton, New Jersey.

1,547,310 Mold for Forming a Dipped Rubber Bag. Charles H. Elliott, San Francisco, California.

1,548,136 Means for Removing Solid Tires from wheels. Leo O. Grange, Minneapolis, Minnesota.

1,548,156 Tire Building Machine. Ward T. Mixsell, assignor to Kelly-Springfield Tire Co., both of Cumberland, Maryland.

## The Dominion of Canada

251,925 Conveying Apparatus for Tires. Henry W. Spooner, the Borough of Brooklyn, New York, N. Y., U. S. A.

252,035 Tire Forming Material and Machine for Making. The Yoder Morris Co., assignee of Howard J. Morris, both of Cleveland, Ohio, U. S. A.

## The United Kingdom

233,856 Rubber Mixing Mills. Dunlop Rubber Co., Ltd., 1 Albany street, Regents' Park, London, and C. Macbeth, Dunlop Rubber Co., Fort Dunlop, Erdington, Birmingham.

234,090 Apparatus for Re-treading, Molding Wheel Tires. J. M. Picquera, 50 Boulevard de la Villette, Paris, France.

234,170 Machines for Finishing Edges of Sheet Material. British United Shoe Machinery Co., Ltd., Union Works, Belgrave Road, Leicester.—United Shoe Machinery Corporation, 205 Lincoln street, Boston, Massachusetts, U. S. A.

234,265 West-Feeler Arrangements for Looms.—British Northrop Loom Co., Ltd., Daisyfield, Blackburn.—Northrop Loom Co., Hopedale, Worcester, Massachusetts, U. S. A.

234,919 Machine Specially Intended for Lasting Rubber footwear. A. E. White, 88 Chancery Lane, London.—(B. F. Goodrich Co., 1780 Broadway, New York, N. Y., U. S. A.)

## Process Patents

## The United States

1,545,604 Rubber coat and method of making. Levi M. Rosenthal, New York, N. Y.

1,545,848 Golf ball with center of rubber mixed with resinous oil from balata, etc. Alfred E. Penfold, Birmingham, England, assignor to Dunlop Tire & Rubber Corporation of America, Buffalo, New York.

1,546,738 Rubber elastic fabric and method of weaving it. Alfred Laurain, assignor to Société du Caoutchouc Manufacture, both of Paris, France.

1,547,879 Process of making molded handled hot water bottle and the like. George L. Lawrence, Jr., Melrose, assignor to The Tyer Rubber Co., Andover, both in Massachusetts.

1,548,689 Process and device for the direct production of rubber sheets and molded articles from latex. Paul Klein, Budapest, Hungary, assignor to The Anode Rubber Co., Limited, London, England.

1,548,783 Process of forming paper or fabric elastic in all directions—crinkled fabric. William A. Lorenz, assignor to The Otaka Fabric Co., both of Hartford, Connecticut.

## The Dominion of Canada

251,821 Method of jointing inner tubes. Charles Herbert Semple, Yardley, Pennsylvania, and The Lee Rubber & Tire Corporation, New York, N. Y., both in the United States.

252,178 Process of partially coagulating latex for the manufacture of rubber. The Hevea Corporation, New York, assignee of F. R. Henderson & Co., Inc., New York, assignee of Chauncey C. Loomis, Yonkers, and Horace E. Stump, Brooklyn, all in New York, U. S. A.

252,179 Process of forming fabric seams with latex. The Hevea Corporation, New York, assignee of F. R. Henderson & Co., Inc., New York, assignee of Chauncey C. Loomis, Yonkers, and Horace E. Perry, Brooklyn, all in New York, U. S. A.

252,180 Process comprising vulcanizing and partially coagulating latex. The Hevea Corporation, New York, assignee of F. A. Henderson & Co., Inc., New York, assignee of Chauncey C. Loomis, Yonkers, and Horace E. Stump, Brooklyn, all in New York, U. S. A.

252,390 Elastic fabric and method of making it. James R. Kendrick Co., Inc., assignee of William Jerome Fox, both of Philadelphia, Pennsylvania, U. S. A.

## The United Kingdom

233,739 Shaping or molding articles, such as tires, from sheet material by fluid pressure. A. E. Cutler and P. A. Marsden, Walsh Island, New Castle, New South Wales.

233,786 Preparation of a tennis floor of porous and resilient paving, including dissolved rubber. A. K. Bamher, 32 Belmont Hill, Lewisham, London.

234,376 Reeling sheet material, previous to treatment in drying, bleaching or vulcanizing chamber. A. E. Young, 12 Hereford Road, Wavertree, E. G. Wilson, Netherwood, Far Moss Road, Blundellsands, and E. Wilson & Son, Ltd., Aintree Road, Bootle, all in Liverpool.

234,927 Method of making inner core for tennis balls from non-porous material such as gutta percha, balata, rubber mixture, etc. Dunlop Rubber Co., Ltd., 1 Albany street, Regent's Park, London, and A. E. Penfold, Fort Dunlop, Erdington, Birmingham.

235,151 Manufacture of deep sea cables partly composed of india rubber filling and with insulated cover of layers of rubber, gutta percha, etc. Felton & Guilleaume Carlswerk, Akt. Ges., Mülheim, Cologne, Germany.

## Design Patents

## Germany

416,795 (November 10, 1923) Spreading machine for rubber with recovery apparatus. Continental Caoutchouc-und-Gutta-Percha Compagnie, Hannover.

## New Goods and Specialties

### An Amusing Beach Toy

A BEACH novelty, which is an excellent aid in swimming as well as a great funmaker, may be found in "Daddy Buoy," herewith illustrated. It is made of pure gum rubber and when inflated it turns into a doll-man-like person, clad in a gaily colored bathing suit and cap. "He" measures thirty inches in length, wears permanent colors, has a most infectious, permanent grin and will yell when squeezed. He is said to be as durable as a rubber tube and can be mended the same way, if punctured; and is easily blown up or deflated by removing the stopper in the head.

"Daddy Buoy" is capable of supporting the weight of an adult in the water and his "voice" can be used to attract the attention of the lifeguards, if necessary. However, the manufacturers do not suggest the buoy as a life preserver on account of the strict regulations for such articles, which are in force at

many beaches.—The Perfection Rubber Co., 2097 Columbus Road, S. W., Cleveland, Ohio.



"Daddy Buoy"

### Improved Protective Apron

An innovation in protective aprons, according to the manufacturers, has been added to the well-known Naiad line of rubber goods. This apron is being marketed under the trade name of "Snugfit" and is herewith illustrated. It has a newly designed and improved top that is specially shaped to conform to the curves of the body. This new top will keep the apron snugly in place and also allow the wearer's gown to hang smoothly and remain un wrinkled. Once tied, it is stated, the "Snugfit" will not shift or move, but will stay in the same position all day. This apron is made of pure gum rubber with a net or marquisette top of fine cotton.—The C. E. Conover Co., 319 Fifth avenue, New York, N. Y.

### Wee Wee Shield

An addition to the Junoform line of sanitary specialties for women and children is an improved model of the Wee Wee Nursing Shield. This garment is of great value to nursing mothers as it prevents staining of garments and may be worn without danger or discomfort. The Wee Wee shields come in several styles. All of them are made with rubber or rubberized fabrics. They may be obtained with a body of heavy batiste with breast shield of extra fine Junoform sheeting with linen mesh pockets, or with a body of muslin, shields of rubberized nainsook and net pockets, or made of silk. All of the shields have open mesh pockets for holding absorbent cotton which makes a comfortable covering. According to the manufacturers, the finest gowns may be worn over

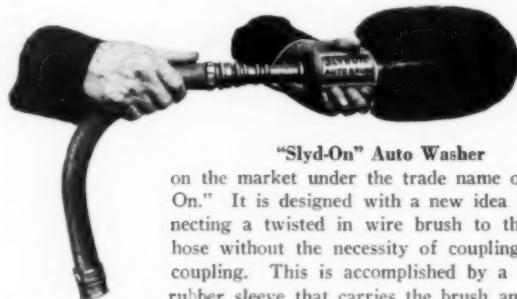


"Snugfit" Apron

these shields with perfect safety, for they prevent all discoloration of the dress.—De Luxe Mills, Inc., Sixty-second street, Girard and Haverford avenues, Philadelphia, Pennsylvania.

### Auto Washing Brush with Rubber Handle

Garage owners, and motorists who wash their own cars, will appreciate this new washing brush which has recently been put



"Slyd-On" Auto Washer

on the market under the trade name of "Slyd-On." It is designed with a new idea for connecting a twisted in wire brush to the water hose without the necessity of coupling or uncoupling. This is accomplished by a patented rubber sleeve that carries the brush and eliminates the coupling, present in other washers. Other exclusive features, according to the manufacturers are: the "Slyd-On" is the only washer that can be attached or detached instantly; the rubber handle protects all metal parts of the hose so it is impossible to scratch or mar the surface of the car when the washer is in use, and the "Slyd-On" fits all connections with or without the nozzle.

The bristle brush, herewith illustrated, can be used like almost any brush either on automobiles or in general work around the house. Other types are made for use underneath the fenders where the tar accumulates and also in cotton for places where a bristle or fiber brush is not practical.—The Mac-Rim Co., 30 Wallace Street, New Haven, Connecticut.

### The "Heckendorf Golf Sandal"

A new accessory for the golfer which devotees of other sports involving walking, such as hiking, will find economical, convenient and comfortable is the new "Heckendorf Golf Sandal" herewith illustrated. This item is made of high grade and long wearing materials. The upper is of calf-skin while the sole is of waxed-split sole leather. The rubber which fastens around the heel is of a grade similar to that which is used in automobile inner tubes. The carks in the sole are securely held in place, and so that the sole will have additional wearing qualities, the makers have studded it with rivets.

For the golfer who uses the public links, this sandal is especially convenient, for a pair may be carried easily in the coat pocket and slipped on in less than a minute over the regular street shoes. In a traveling bag they require very small space. The Heckendorf sandal is stated to have met with much approval by hikers and to be especially favored by the Boy Scouts on



Golf Sandal

their hiking trips. The sandals may be hung on the wearer's belt and be quickly put on when climbing or rough walking begins. The sandal comes in two sizes: "small" for shoes from five to eight, and "large," for shoes from nine to eleven. They cost much less than the usual hiking shoe.—The Athletic Shoe Co., 918-934 N. Marshfield avenue, Chicago, Illinois.

### Snap-On Shield Belt

Another of the "Tidy Products" sanitary articles is now being offered under the name of Tidy Shield Belt illustrated. This article is of the snap-on style and consists of two shields, each shield in turn is made of two pieces of high grade sateen. The edges are turned under—like a man's collar. Through the belt the highly mercerized elastic is interspersed and there are no bound edges and no cross taped pieces where the elastic joins the shield. According to the manufacturers, a special effort has been made to advance in the preparation of this item, their slogan "Their Quality is Remembered."—The Sanitary Rubber Novelty Co., Inc., 319-331 West Ohio street, Chicago, Illinois.



New Tidy Shield Belt

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the elastic joins the shield. According to the manufacturers, a special effort has been made to advance in the preparation of this item, their slogan "Their Quality is Remembered."—The Sanitary Rubber Novelty Co., Inc., 319-331 West Ohio street, Chicago, Illinois.

### A Rubber Accessory for the Golfer

A handy cleaner for golf balls is now being advertised as one of the "Avon" line of rubber specialties. It is called "the sponge in

the captive cup" and consists of a cup-shaped rubber receptacle with a rubber cover attached by a cord. The cup holds the cleansing sponge. As may be seen in the illustration, there is a turned-in edge which holds the sponge in position and retards evaporation. It is practical, strong and durable. Circular brushes to fit inside the rim may be obtained if desired.

Another type of golf ball cleaner, made by the same company, is a small pocket cleaner, and is known as the "pouch cleaner." This consists of a rubber pouch on the order of a tobacco pouch. It has a sponge container of rubber and an overlapping flap.—The Avon India Rubber Co., Ltd., 343-5 Euston Road, London, N. W. 1, England.

**Faultless Line of Sheet Sponge Rubber**  
The Faultless line of sheet sponge rubber, according to the manufacturer, meets all the essentials necessary for a high grade product of this kind. The rubber is of uniform thickness without undersize or oversize areas and with a high number of square inches to the pound.

This particular line comes in different thicknesses and in various colors. The black sheet sponge is low in gravity, soft and resilient. It comes in two grades: the antimony red comes in a fine dense quality and in several other grades, to a very soft, resilient, low gravity, small pore sponge that is said to be the lightest obtainable sheet sponge with small uniform pores. This grade is recommended by the manufacturers for such work as cushions and in radio and electrical work. The sheet sponge also comes in natural color in several styles and may be obtained in special colors.

The standard size sheets of all grades, except two, is 20" x 20".

Various special sizes can be arranged for. If extra thickness is desired, two sheets may be vulcanized together.—The Faultless Rubber Co., Ashland, Ohio.

### A Balloon Toy for Children

A toy which will doubtless greatly please the children as well as prove instructive to them is an airplane illustrated now on the market. It is constructed of cardboard and has a rubber balloon which is inflated, and the color scheme is red and blue. The airplane is packed taken down, but may be quickly and easily set up, the manufacturer states. Full instructions for putting it together are sent with each airplane. The inventor is stated to have been but 20 years of age when he designed this toy.—National Aeroplane Co., 611-621 Broadway, New York, N. Y.



Toy Airplane

### Marcelling and Hairdressers' Comb

A comb to aid both the professional hairdresser and any woman who wishes to marcell her hair has been put on the market under the name of "Laufe's Rake" comb shown herewith. It is made with teeth neither fine nor coarse but



"Laufe's Rake" Comb

of the right size, so the manufacturers state, to make it easy to pick up, hold and guide the hair when waving. The comb eliminates continuous combing of the hair and helps in obtaining a smooth and even wave in less time and with less labor than when the fingers alone are used to guide the hair. The "Rake" will be especially appreciated when the hair is fine or when it is slippery after a shampoo. It is said to be impossible to burn the ears or neck of the bobbed hair woman, if this comb is used, for the hot iron fits into the hollow of the comb which acts as a guard. The comb is also valuable for use when dyeing the hair. It may be used for the general purposes of the ordinary hair comb. It removes tangles and dust easily and does not scratch the scalp. The comb is made of hard rubber, well finished and durable.—Stay-Tight Co., 303 Fourth Avenue, New York, N. Y.

### Comfort for the Motorist

A new auto cushion is designed to support and cushion any part of the body. With it the most sensitive person can motor



Wedge-Shaped  
Auto Cushion

long distances, without fatigue or stiffness, for it protects body, muscles, nerves, spine and kidneys, according to the manufacturer. This wedge-shaped auto cushion, illustrated, may be used as a seat cushion, as a back rest, as a buffer or pillow for the head, neck and shoulders, the small of the back; or to seat a short person closer to the steering wheel. With its use, fatigue is avoided and shocks, jars, jolts, bumps and other vibrations are eliminated with their resulting backache, stiffness, etc. Deflated, this cushion takes up very little room. Inflated, its size is 16½ by 18 inches. Like the other Airubber products, it is made of strong and dependable rubberized fabric with the seams or joints vulcanized and not cemented. Continuous air circulation is also assured. This wedge-shaped cushion comes in rubberized khaki and in corduroy in dark blue, beaver, auto-smoke, and chestnut.—Airubber Corporation, 581-589 East Illinois Street, Chicago, Illinois.

**Garter for Rolled Hose**

A new invention is particularly designed for those women who roll their hose. The puffed garter illustrated serves two purposes in that it prevents the stocking from sagging, wrinkling and thus becoming unsightly and it also makes a very contrasting finish that is said to be distinctly pleasing. The space between the rubberized edges is wide enough to cover the roll of the stocking thoroughly.—Everlastik, Incorporated, New York, N. Y.



Everlastik Garter

**Decorated Rubber Play Ball**

The decorated rubber play ball, here illustrated, is designed to eliminate the objectionable paint and enamel on the old style decorated balls. It has been patented by Ralph E. Riley and assigned to The Miller Rubber Co., Akron, Ohio.



Miller Play Ball

laid in such a way that the pictures or decorations always will retain their original color without danger of coming off as in the case of painted or enameled balls.

**New Household Rubber Aprons**

The particular customer can be satisfied with one of the Archer aprons, especially the reversible model, which is offered in six attractive color combinations. They are made of fancy cretonne and of a heavy rubber coating in pretty floral designs, for the first time, the manufacturers state, in the history of rubber aprons.

Three of the designs of the Archer apron are shown in the illustration. The coating of these aprons, which are the non-reversible type, is 5½ ounce rubber in black electric finish. Some of the aprons have wide shoulder straps; others have neckbands and still others have tape necks. Most of them have pockets with the edges bound in contrasting colors. The aprons are made of cretonne unless percale is especially ordered. The reversible apron is printed on an extra heavy white rubber backing of the cretonne and is, it is said, really reversible and will give long wear. They come in sizes appropriate for women and for children.—The Archer Mfg. Co., 5853 Kedzie Avenue, Chicago, Illinois.

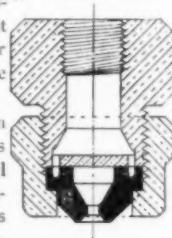


Archer Waterproof Aprons

**Hard Rubber Spray Nozzles**

In the manufacture of heavy acids and other chemical products use is frequently made of sprays. The spray tips are made of various materials according to the nature of the material passing through them. Hard rubber is employed for spray tips where the nature of the gases encountered renders it absolutely necessary. Hard rubber tips cannot be used where the temperature is too high for the material. They are used mostly where hydrochloric acid gases are present.

A typical hard rubber spray nozzle is shown in the illustration. When the tip or disc is worn it may be replaced by a new one at small cost, as the cap and body will usually last indefinitely. Further, if conditions change, tips of larger or smaller capacity may be used.—Monarch Mfg. Works, Inc., Salmon and Westmoreland streets, Philadelphia, Pennsylvania.



Hard Rubber Spray Nozzle

**Raincoat of Novel Construction**

This is a novel, patented method of making rubber raincoats for firemen, policemen, and also sheeting coats for men, women, and children. According to ordinary practice, coats are made from rubberized fabrics that permit stretching along the width of the garments, thereby producing separation of rubber and fabric due to the unequal stretch of these materials.

The garment here shown is cut across the width of the cloth and is not stretchable across the chest, consequently the rubber coating will not peel around the sleeves and armpits. The body of the coat is cut out of one piece. The only seams are on the shoulders and armholes, and the sleeves have only one seam.

The wearing qualities of this coat are said to be far greater than the ordinary rubber coat, because the three body seams are eliminated, and the front seam of the sleeve is also eliminated. It can be made from vulcanized material with cold cement due to its one piece body feature.—Levi M. Rosenthal, 610 W. 152nd street, New York, N. Y.



Rosenthal Raincoat

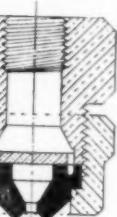
**An Electric Towel**

Executives of rubber factories, wherever large numbers are employed, will be interested in the elimination of towel waste and the consequent reduction of expense, janitor work, fire hazard and of the spread of disease. The Airdry is a machine, called "the electric towel" that dries hands and face quickly by the use of electrically heated air, through the means of natural evaporation.

According to the manufacturers, Airdry can save from 60 to 85 per cent of towel expense. It is quick and simple to operate. The user puts his foot on the pedal, adjusts the nozzle to the right height, massages his face or hands a moment and is dry.

The device can be installed anywhere there is a wiring connection. It can be furnished for either 110-25 volts 9.1 amperes or 220 volts 4.5 amperes and has a universal motor for either direct or alternating current.—American Airdry Corporation, Knickerbocker Building, Broadway and 42nd street, New York, N. Y.

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"POSSIBILITIES FOR PARA RUBBER PRODUCTION IN THE Philippine Islands." By C. F. Vance, special agent, A. H. Muzzall, special agent, and J. P. Bushnell, assistant trade commissioner, Department of Commerce, and Mark Baldwin, Inspector, Soil Survey, Department of Agriculture. Trade Promotion Series No. 17. Crude Rubber Survey. Published by the Department of Commerce, Washington, D. C. Paper, illustrated, 101 pages, 5 1/2 by 9 inches, price 20 cents.

**T**HIS is the third of a series of publications on crude rubber issued under authority of the Sixty-seventh Congress. The first and second reports have been reviewed in these pages already, the second report on "The Plantation Rubber Industry of the Middle East" having been reviewed and summarized in *The India Rubber World* of July 1, 1925.

The present report describes the existing small rubber growing industry in the Philippines and discusses the extent to which this industry might be expanded. Following a brief summary of the findings, the detailed major part of the volume consists of eight sections devoted to a general description of the areas studied, rubber production in the Philippine Islands, survey of potential rubber lands, soils, labor and wages, land, taxes and finance, costs and methods, communications and a bibliography.

The findings, similar to those of the Editor of *The India Rubber World* eight years ago, indicate that the climatic conditions of the Philippines are as favorable for rubber planting as are those of the Middle East, and that large areas are superior as regards soil, topography and accessibility to the lands now generally available for new plantations in Sumatra and Malaya. While the present land laws are a handicap, it is estimated that in the more congested provinces local labor might ultimately furnish a sufficient force to produce, when mature, 70,000 tons of rubber yearly. These conclusions are substantiated by a wealth of illustrations, maps, statistical and other authentic, up-to-date information.

"VANDERBILT LOOSE LEAF NOTEBOOK." R. T. Vanderbilt, 50 East Forty-second street, New York, N. Y. Fourth edition, 110 loose leaf pages, flexible leather covers, pocket size.

This notebook had its beginning in 1919 as 10 pages, mostly of an advertising nature, prepared by A. A. Somerville. In each succeeding edition the notes have increased in volume and in value to the rubber technical man. A two year calendar for 1925-26 is followed by the notes comprised in 3 sections. The first section is descriptive of Vanderbilt materials; the second contains general technical data and tables; the third, abstracts of original articles by chemists in the rubber industry. For convenience of reference each section is printed on a different color of paper.

The notebook is distributed free to presidents, managers, superintendents, chemists, foremen, compounders and technical men. The esteem in which this publication is held is shown by the fact that 90 per cent of the earlier editions are still in use.

"L'INDUSTRIE DES PRODUITS CHIMIQUES ET SES TRAVAILLEURS." By A. Matagrif. Published by Gaston Doin, 8, Place de l'Odéon, Paris. Paper, illustrated, 505 pages, 4 1/2 by 7 1/2 inches.

The history of the chemical industry from its beginnings to the present day and more particularly the conditions, social and economic, obtaining at this moment, are covered in this volume. The more important part of the book deals with modern processes, equipment and industrial hygiene, besides problems of organization, research laboratories, benefits, personnel, the 8-hour day, etc. To each of the twelve chapters comprising the main body of the work is appended a full bibliography including foreign authorities. Reference is made to *The India Rubber World* in connection with gas masks for industrial purposes and also with regard to poisons in the rubber industry.

## The Editor's Book Table

### Book Reviews

### New Trade Publications

"WESTINGHOUSE CATALOGUE OF ELECTRICAL SUPPLIES 1925-1927." This catalog of 1,184 pages is published by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pennsylvania. It presents an almost complete listing of apparatus manufactured by the company or obtainable through its district offices and agent-jobbers. The information on electrical supplies is given in full. A brief description of the company's industrial motors and controllers, power and marine equipment, large switch boards and oil circuit-breakers and railway supplies is also included. The book contains a very complete cross-index and a style number each on colored paper for ready reference.

"YEAR BOOK—AMERICAN ENGINEERING STANDARDS COMMITTEE, 1925," contains important data regarding progress in the new standardization movement. The Rubber Association of America, William R. Thropp's Sons, Trenton, New Jersey, and the Vaughn Machinery Co., Cuyahoga Falls, Ohio, are mentioned in projects concerning walkway surfaces, safety codes for rubber machinery, and standard make-ups for rubber insulated wires.

REPORTS OF PLANT ACTIVITIES HAVE BEEN RECEIVED THROUGH publications sent by the following companies: Dunlop Tire & Rubber Co., Buffalo, New York, house organs, "Pure Para" and "Dunlop Merchant News"; Mohawk Rubber Co., Akron, Ohio, broadside and house organ, "The Mohawk Messenger"; and the Goodyear Tire & Rubber Co., Akron, Ohio, house organ, "The Wingfoot Clan."

"DAILY RUBBER TRADE," A REVIEW OF MARKETS, PRICES, CABLES, and general news of the rubber industry, is being published at 150 Lafayette street, New York, N. Y.

"THE TIRE RATE BOOK, JULY, 1925," CONTAINS IMPORTANT data arranged under the following headings: "Up-to-date Consumer Prices"; "Charges for Repair Work"; "Balloon Tire Sizes on Current Car Models"; "Standard Balloon Inflation Schedule"; and "Complete Tire and Rim Specifications for all Car and Truck Models from 1917 to 1925."

"MICRO-GRAMS" FOR RUBBER MEN. No. 8, RECLAIM COST VS. QUALITY, issued by Binney and Smith Co., New York, N. Y. Emphasizes the need of specially reinforcing reclaim when it is employed in large percentages in a rubber compound.

### Recent Articles

THE FIBROUS STRUCTURE OF STRETCHED RUBBER.—Lothar Hock. *Gummi-Zeitung*, July 17, 1925, 1740-1742. Illustrated.

ANALYSIS OF RUBBER AND RUBBER GOODS. Recommendations are made as to standardized procedure for the analysis of raw and vulcanized rubber. Details are given as to the following operations:—Inspection; sampling; determination of moisture and of water-soluble constituents; successive extraction with acetone, chloroform, and alcoholic potash solution; determination of fillers insoluble in liquid paraffin at a temperature below 300 degrees (anisole is recommended in place of liquid paraffin for rubbers containing antimony sulphide); determination of ash; and determinations of content of chlorine, carbonate, total nitrogen, glue, free carbon, cellulose, apparent and true free sulphur, sulphur combined with mineral substances, with rubber and with other organic substances. Means are indicated for the determination or indication also of liquid paraffins, solid paraffins, resin, organic accelerators, regenerated rubber and phenol resins; the discrimination between *Hevea* (and synthetic) rubber and natural rubber from other sources; and the full analysis of the mineral compounding ingredients. The physical tests include specific gravity, effect of

exposure to ultraviolet radiation, viscosity and swelling power (for raw rubber), and microscopical examination.—A. Haanen and E. Kindscher, *Zeitschrift für Angewandte Chemie*, 1925, 38, 459-472.

**SEPARATION OF CAOUTCHOUC INTO CONSTITUENT PARTS BY DIFFUSIONS.** The known fact is confirmed that unworked rubber in contact with solvents, especially ether and petroleum spirit, is separable into an insoluble swollen gel and a soluble portion which diffuses away from the residue. When ethereal solutions of the soluble portion are slowly evaporated, the film of caoutchouc so produced is of unequal thickness and falls into patterns resembling ice-flowers. In the course of the evaporation a transient milkiness is observed, which does not return when the dry film is redissolved; the analogy with silica gel is pointed out.—H. Feuchter, *Kolloidchemische Beihete*, 1925, 20, 434-448.

**ADSORPTIVE PROPERTIES AND PARTICLE SIZE OF LAMBLACK IN ORGANIC LIQUIDS AND RUBBER MIXINGS, AND EFFECT OF ADDITION OF LAMBLACK ON THE PROPERTIES OF VULCANIZED RUBBER.** A number of commercial lampblacks have been examined for adsorbent properties and for behavior when incorporated in proportions up to 25 per cent in rubber mixings. The lampblacks adsorb water from the vapor phase at 25 degrees to a maximum of 11 per cent, but the adsorbent power diminishes after extraction with alcohol; little or no adsorption of various substances from benzene solution takes place. Lampblack mixed into rubber dough imparts to it a resistance to dissolution in rubber solvents which is especially well marked in the case of American gas lampblacks. The quality of lampblacks for rubber-mixing purposes appears to be a function of their fineness. The finer the subdivision, the darker the dough, the higher the viscosity of the dissolved dough, and the greater the resistance to abrasion of the vulcanized goods. No useful criterion was found by which the behavior of a lampblack as a rubber filling might be foretold from its properties in the unmixed state.—M. Le Blanc, M. Kröger, and G. Kloz, *Kolloidchemische Beihete*, 1925, 20, 356-409.

**A TECHNICAL COMPARISON OF MODERN RUBBER REINFORCING MATERIALS. I. The Stress Strain Curve.** This is the first of a series of articles furnishing test data regarding the effect of certain of the important finely divided pigments now in use in rubber manufacture, showing the connection existing between the various laboratory tests available, and in so far as possible the relation of such tests to the results obtained in actual service. The pigments considered are zinc oxide, gas black, lampblack and thermatomic carbon.—D. F. Cranor, *India Rubber Journal*, July 11, 1925, 63-65. Graphs.

**VULCANIZATION AND ACCELERATORS. PART II. SERIAL.** André Dubosc, *Rubber Age*, New York, August 10, 308-310.

**RUBBER FOR ROADWAYS. SERIAL.** E. B. Warren, *Rubber Age*, London, August, 1925, 303-305.

**"FLATS" IN SOLID TIRES.** The occurrence of flat areas on solid tires in service is not due to manufacturing defects but to localized wear assignable to such faulty conditions of mounting as cause the following irregularities: incorrect distribution of weight, eccentricity or wobble; lack of parallel; looseness on their mounting. Report Society of Motor Manufacturers and Traders, *Rubber Age*, London, August, 1925, 316-317.

**PLASTICITY DETERMINATION IN CRUDE RUBBER.** A systematic examination of a considerable number of plantation and other rubbers in regard to plasticity.—O. de Vries, *India Rubber Journal*, July 18, 1925, 101-102, from *Mededeelingen*, 44, 260. Illustrations, graph, and tables.

**THE MANUFACTURE OF EMERY WHEELS.** Descriptive, special contribution, *India Rubber Journal*, August 1, 1925, 189-190.

**STOCKS FOR RUBBER FOOTWEAR.** General with several typical formulæ illustrating English practice, *India Rubber Journal*, August 8, 1925, 233-234.

**THE PREPARATION OF SOLE CRÈPE RUBBER IN MALAYA.** H. C. Pinching, *Bulletin of the Rubber Growers' Association*, July, 1925, 382-387. Illustrated.

**BULK TEST WITH PARANITROPHENOL.** The P. N. P. treatment consisted in soaking the sheets for an hour in a 0.1 per cent solution in water. The test demonstrated once more the efficiency of P. N. P. as a mold preventive. In pure rubber-sulphur mix the control sample vulcanized faster than P. N. P. treated sheets.

In the presence of litharge the control sample vulcanized more slowly. In the presence of zinc oxide and an accelerator the difference is entirely neutralized.—H. P. Stevens, *Bulletin of the Rubber Growers' Association*, July, 1925, 419-420.

**STUDIES OF HEVEA LATEX. III. Proteins and Allied Bodies.**—W. N. C., Belgrave. *The Malayan Agricultural Journal*, June, 1925, 154-159. Tables, references.

**WHAT ARE THE CAUSES OF THE PECULIAR ELASTICITY OF RUBBER. II.** J. R. Katz, *Kolloid-Zeitschrift*, July, 1925, 19-22. Tables.

#### PATENT DECISIONS

**MASURY AND LEIPERT VS. BELL.** Court of Appeals of District of Columbia. Appeal from Patent Office. Decided June 1, 1925. No. 1,754.

The case represents an appeal from a decision of the patent office in an interference proceeding awarding priority to the senior party, Bell, and concerns an invention consisting of a suspension link of flexible, non-metallic material used in connecting the springs of an automobile to the chassis frame. The testimony offered to establish the date of invention of the junior parties was considered insufficient, and the former decision was therefore affirmed.—United States Patent Office, *Official Gazette*, Vol. 337, page 4.

#### INCREASE IN REGISTRATION OF MOTOR VEHICLES

Motor vehicle registrations in the United States totaled 17,548,377 on July 1, 1925, a gain of 2,108,407, or 13.7 per cent as compared with July 1, 1924. According to a survey made by *Automotive Industries*, this figure for the six months period is only a little lower than the 17,605,501 recorded for the entire year 1924. With six months yet to come, the total for the year 1925 is now being estimated as approximately 19,000,000, an 8 per cent increase.

In the present registration for July 1, 1925, New York again as in previous years holds, at 1,332,168, the leading place among the states, followed by California, 1,283,202; Ohio, 1,232,943; Pennsylvania, 1,213,909; and Illinois, 1,123,565. Florida showed, at 51.2 per cent, the largest percentage gain recorded by any state, while Texas, with an increase of 191,710, represented the greatest numerical gain. According to statistics based on the population estimates of the Bureau of Census, there is now in the United States one motor vehicle to every 6.47 persons, as compared with last year's figure of one to every 7.2 persons.

#### RUBBER SITUATION DISCUSSED BY HOOVER AND WOOD

Attempts to better the rubber situation from the standpoint of the American rubber consumer are being made both by Secretary of Commerce Herbert Hoover and Governor General Leonard Wood of the Philippines. The former, while admitting the faults of reprisal measures, believes that the most logical step is legislation permitting American importers to combine to control the market in the buyers' interest. Governor General Wood has stated that he will send in a few days a message to the Philippine legislature regarding the development of rubber and recommending the leasing of 20,000 acres for 25 years with a renewal privilege of 25 years.

MALAYA. H. C. Association, July,

P. N. P. treated in a 0.1 per cent more the efficiency rubber-sulphur mix. P. treated sheets. vulcanized more an accelerator the tens, *Bulletin of 9-420.*Allied Bodies.—*Journal*, June,

ELASTICITY OF July, 1925, 19-22.

Deals of District Decided June 1,

on of the patent to the senior of a suspension connecting the The testimony junior parties on was therefore *zette*, Vol. 337,

## VEHICLES

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## AND WOOD

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## Rubber Trade Inquiries

*The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.*

NUMBER	INQUIRY
653	Manufacturers of kneeling pads of sponge rubber.
654	Makers of reclaiming machinery.
655	Names of firms which handle rubber shoes, toy balls and balloons.
656	Firms dealing in Camel's rubber.
657	Sources of supply for obtaining rubber goods for jobbing.
658	Manufacturers of household rubber goods.
659	Makers of Rysolin golf ball undercoat and enamel.
660	Dealers in "Nobility" rubber raincoats.
661	Manufacturers of transfers for branding tires.
662	Manufacturer of "Binter", a compounding ingredient.
663	Makers of Westcott Sole (rubber and fibre).
664	Addresses of manufacturers of insulating tape.
665	Information about Vulcabeston.
666	Names of manufacturers of gas masks.
667	Makers of cloth covered tubing for gas lamps.

## Foreign Trade Opportunities

*Address and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th Street, New York, N. Y.*

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
15,940	Argentina—Rubber goods of all kinds.	Purchase and Agency
15,941	England—Bathing caps, balloons, medical and mechanical rubber goods.	Purchase and Agency
15,974	Rumania—Tennis balls and shoes.	Purchase
15,975	Canal Zone—Tennis and golf balls.	Purchase
15,986	Sweden—Belting, rubber, transmission and conveyor.	Purchase and Agency
15,987	Syria—White rubber shoes.	Purchase and Agency
15,997	Germany—Rubber and material for vulcanizing work.	Purchase
16,067	Germany—Rubberized fabrics.	Purchase
16,068	England—Rubberized cotton goods.	Purchase
16,080	Germany—Automobile tires.	Purchase and Agency
16,086	Netherlands—Red rubber bands.	Purchase and Agency
16,098	Sweden—Bathing caps and other rubber articles.	Purchase
16,176	Switzerland—Balloon cloth.	Purchase
16,219	Mexico—Rubber goods manufacturing machinery.	Purchase
16,246	Netherlands—Medical rubber goods.	Agency
16,314	Persia—Shoes for men and women.	Purchase
16,353	Belgium—Mechanical rubber goods.	Agency
16,334	England—Balloons.	Agency
16,367	Czechoslovakia—Bicycle and automobile tires.	Agency
16,434	Germany—Canvas rubber soled shoes.	Purchase
16,451	Mexico—Canvas rubber soled shoes and rubber novelties.	Agency
16,452	Venezuela—Automobile tires.	Agency

## Foreign Trade Circulars

*Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.*

NUMBER	SPECIAL CIRCULAR
932	"Tire Exporters' Weekly News Letter."
933	"Retail Tire Price Increases."
934	"British Market for Flexible Tubing for Gasoline Filling Stations."
938	"Retail Tire Price Increases."
939	"Tire Exporters' Weekly News Letter."
940	"Retail Tire Price Increases."
941	"Retail Tire Price Increases."
942	"Retail Tire Price Increases."
945	"Retail Tire Prices in the United Kingdom."
947	"Tire Exporters' Weekly News Letter."
948	"French Exports of Rubber Tires During May."
949	"French Exports of Rubber Footwear During May."
950	"British Exports of Pneumatic Casings During May."
951	"British Exports of Rubber Footwear During May."
952	"Canadian Tire Exports for June."
954	"Tire Exporters' Weekly News Letter."
955	"June Imports of Rubber Tires."
956	"June Imports of Golf Balls."
957	"Canadian Exports of Rubber Footwear during the First Half of 1925."
958	"Canadian Tire Exports Heavy during First Half of 1925."
959	"Further Increases in Retail Tire Prices in France."
963	"Tire Exporters' Weekly News Letter."
964	"Export Trade Notes on Rubber Footwear."
965	"Crude Rubber Imports into the United States During the First Six Months of 1925."
966	"British Exports of Automobile Casings First Six Months 1924."

## The Obituary Record

## Death of Alan Northridge

While traveling in Europe on a business trip, Alan Northridge, head of a company bearing his name, died instantly from injuries met in an automobile accident. Mr. Northridge, who has been specializing in colors and compounding ingredients for the rubber trade, maintained offices at 140 Front street, New York, N. Y. Born in Brooklyn, New York, in 1884, he was making that city his home at the time of his death, and his body will be brought there for burial. He is survived by his widow and two daughters.

## General Manager Atlantic Tubing Co.

Harry L. Lippitt, president and general manager of the Atlantic Tubing Co., Cranston, Rhode Island, died August 24 in his 59th year at his summer home at Narragansett Pier, where he was spending his vacation. He had been ill for about eight months.

Mr. Lippitt was born near Athol, Massachusetts, but had spent most of his life in Providence, Rhode Island. He came to Providence about thirty years ago and first became connected with the Atlantic Tubing Co., as a salesman. Later he bought an interest in the firm and eventually purchased the business. He was a member of the various Masonic bodies and was a great sportsman, making frequent trips to New Brunswick and Maine for hunting and fishing. He is survived by his wife, a daughter and one grandson and a brother, George Lippitt of St. Petersburg, Florida.

## Report of Rims Inspected and Approved by The Tire and Rim Association of America, Inc.

Size	July, 1925		First 7 Months 1925	
	Number	Per Cent	Number	Per Cent
Clincher Rims				
24 x 3	2,106	0.1	8,885	0.1
26 x 3	6,962	0.3	61,470	0.4
28 x 3	454	0.0	2,044	0.0
30 x 3	...	...	197,441	1.3
30 x 3½	390,682	17.3	3,110,445	19.7
31 x 4	14,478	0.7	519,684	3.3
Straightside Rims (Pass.)				
27 x 3½	136	0.0	1,648	0.0
28 x 3½*	819,685	36.2	4,945,792	31.4
29 x 3½*	...	...	144,390	0.9
30 x 3½	46,078	2.0	473,565	3.0
32 x 3½	4,279	0.2	19,112	0.1
28 x 4*	318,462	14.3	1,772,170	11.2
29 x 4*	185,495	8.2	926,565	5.2
30 x 4*	206	0.0	284,811	1.8
31 x 4	...	...	1,393	0.0
32 x 4	22,909	1.0	170,530	1.4
33 x 4	4,099	0.2	11,311	0.1
34 x 4	503	0.0	503	0.0
29 x 4½*	49,595	2.2	307,462	1.9
30 x 4½*	176,862	7.8	839,420	5.3
31 x 4½*	11,099	0.5	235,893	1.5
32 x 4½	31,207	1.4	396,393	2.5
33 x 4½	672	0.0	1,252	0.0
34 x 4½	5,012	0.2	73,992	0.5
36 x 4½	...	...	...	...
30 x 5*	34,716	1.5	240,696	1.6
31 x 5*	28,794	1.3	297,040	1.9
33 x 6*	9,017	0.4	26,266	0.2
Truck Rims				
30 x 5	79,736	3.5	499,515	3.2
34 x 5	5,305	0.2	70,275	0.5
32 x 6	6,539	0.3	83,079	0.5
36 x 6	4,179	0.2	36,393	0.2
34 x 7	1,235	0.0	12,893	0.1
35 x 7	211	0.0	6,396	0.0
36 x 8	803	0.0	7,803	0.1
40 x 8	1,612	0.0	8,811	0.1
40 x 10	250	0.0	604	0.0
44 x 10	102	0.0	402	0.0
Total	2,262,661	100.0	15,796,308	100.0

Per Cent	Per Cent
Motorcycle	0.4
Clincher	18.0
Balloon	72.4
Reg. S. S.	5.0
Truck 20"	3.8
Truck 24"	0.4
Motorcycle	0.5
Clincher	24.3
Balloon	62.9
Reg. S. S.	7.6
Truck 20"	3.9
Truck 24"	0.8

\*Balloon casings.

## Activities of the Rubber Association of America

### June Production, Inventory and Shipments of Tires—Crude Rubber and Fabric Consumption

While with the rise in crude rubber prices the tire and tube industry showed in May a decided tendency to cut down production and utilize stocks, some improvement was indicated by the June figures where production again showed signs of advance. The June output of high pressure cord tires was estimated at 1,894,704, as compared with 1,815,969 for May, while the June production of high pressure inner tubes reached 3,566,099, as against 3,225,218 for the month previous. Production of solid and cushion tires also advanced from 75,473 in May to 85,036 for June.

For the first time, however, this year the production in June of balloon casings and balloon inner tubes gave signs of slackening, although shipments of these goods continued their steady advance. Shipments rose also in June for every class of tires and tubes, while a healthy condition of the industry was still further indicated by a lessening of all inventories, with the

two exceptions of balloon casings and balloon inner tubes. Shipments, however, in June of the two classes of goods just mentioned reached the astonishing figures of 1,573,062 and 1,600,410 respectively, as compared with the January estimates of 563,315 and 528,533.

The June increase of production is still further shown by the surprising record for crude rubber consumption, 53,366,781 pounds for the month, as against the May figure of 47,639,298 pounds, the latter a decline from the April total of 48,154,633 pounds. The estimates of consumption of cotton fabric also rose from 14,984,561 pounds in May to 15,840,498 in June. The above statistics were compiled from reports rendered by 48 manufacturers of high pressure and balloon casings, 10 manufacturers of solid and cushion tires, and 48 manufacturers of high pressure and balloon inner tubes.

All the following figures compiled by the Rubber Association represent 75 per cent of the industry.

### Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

1925	High Pressure Pneumatic Casings						Balloon Casings						Solid and Cushion Tires						
	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments							
												1,217,367	1,168,277	1,217,367	1,168,277	1,217,367	1,168,277		
January	3,562,701	1,999,410	1,618,169	1,498,309	1,009,201	908,260	901,031	546,146	563,315	196,774	52,444	44,814							
February	4,108,082	1,996,488	1,458,136	1,710,425	944,168	718,626	877,851	740,106	764,874	191,733	53,058	55,646							
March	4,369,673	2,000,939	1,708,352	1,836,228	738,625	616,350	926,103	1,217,367	1,168,277	175,010	56,751	69,833							
April	4,035,061	1,816,641	2,012,794	1,700,659	562,449	661,907	1,080,594	1,626,369	1,448,974	166,389	66,059	70,950							
May	3,610,304	1,815,962	2,265,073	1,461,301	480,339	714,728	1,386,840	1,803,607	1,484,877	156,175	75,473	86,785							
June	2,870,827	1,894,704	2,610,409	1,033,840	439,397	869,058	1,527,684	1,729,121	1,573,062	153,098	85,036	90,942							
Cotton and Rubber Consumption in casings, tubes, solid and cushion tires																			
Cotton Fabric Pounds																			
1925																			
January																			
February																			
March																			
April																			
May																			
June																			

### Statistics Compiled from 1925 Questionnaire Covering the Second Quarter of 1925<sup>1</sup>

	Long Tons						Long Tons						Number of Tons of Crude Rubber Used						Total Sales Value of Manufactured Rubber Products					
	Inventory at End of Quarter	Production	Shipments	Inventory at End of Quarter	Production	Shipments	Inventory at End of Quarter	Production	Shipments	Inventory at End of Quarter	Production	Shipments	Inventory at End of Quarter	Production	Shipments	Inventory at End of Quarter	Production	Shipments						
RECLAIMED RUBBER																								
Reclaimers solely (7)	2,569		16,135			16,353																		
Manufacturers who also reclaim (20)	3,832		11,388			7,298																		
Other manufacturers (59)	2,419		—			—																		
Totals	8,820		27,523			23,651																		
SCRAP RUBBER																								
Reclaimers solely (7)	33,497		19,633			11,335																		
Manufacturers who also reclaim (17)	11,404		15,721			12,458																		
Other manufacturers (20)	1,251		—			—																		
Totals	46,152		35,414			23,793																		

### NUMBER OF TONS OF CRUDE RUBBER CONSUMED IN THE MANUFACTURE OF RUBBER PRODUCTS AND TOTAL SALES VALUE OF SHIPMENTS OF MANUFACTURED RUBBER PRODUCTS

PRODUCTS	Number of Tons of Crude Rubber Used	Total Sales Value of Manufactured Rubber Products
Tires and Tire Sundries:		
Automobile and motor truck pneumatic casings	58,986	\$177,502,000
Automobile and motor truck pneumatic tubes	15,732	31,163,000
Motorcycle tires (casings and tubes)	108	493,000
Bicycle tires (single tubes, casings and tubes)	147	419,000
All other pneumatic casings and tubes, not elsewhere specified	21	142,000
Solid tires for motor vehicles	5,800	11,444,000
All other solid tires	109	217,000
Tire sundries and repair materials	1,124	4,312,000
Totals	82,007	\$225,692,000

<sup>1</sup>Less complete than corresponding sales value.

<sup>2</sup>Number of rubber manufacturers that reported data was 200; crude rubber importers and dealers, 37; reclaimers (solely), 7; total daily average number of employees on basis of third week of April, 1925, was 150,673.

It is estimated that the crude rubber consumption figures are 90 per cent of the total, and the crude rubber inventory 95 per cent of the total for the entire industry.

ON HAND	Plantation	Pará	All Other	Totals
Manufacturers	32,275	2,558	2,525	37,358
Importers and dealers	9,753	501	158	10,412
Totals on hand	42,028	3,059	2,683	47,770
AFTLOAT	Plantation	Pará	All Other	Totals
Manufacturers	22,398	69	58	22,525
Importers and dealers	25,703	401	79	26,183
Totals afloat, June 30, 1925	48,101	470	137	48,708

## merica

## umption

Shipments, however, reached the aston-  
is compared with the  
own by the surprising  
s for the month, as  
a decline from the  
consumption of cotton  
40,498 in June. The  
48 manufacturers of solid and cushion  
inner tubes.  
Association represent

## ption

## and Cushion Tires

Produc-	Total
Ship- ments	44,814
52,464	55,646
53,058	69,833
56,751	70,950
66,059	86,785
75,473	90,942
85,036	90,942

## Consumption

## id and cushion tires

Crude Rubber	Pounds
42,170,869	
41,720,847	
46,365,630	
48,154,633	
47,639,298	
53,366,781	

Total Sales Value  
of Shipments  
of Manufactured  
Rubber Products

\$25,799,000  
17,693,000  
7,304,000

3,429,000

5,299,000

2,309,000

6,396,000

1,052,000

5,951,000

\$75,232,000

\$300,924,000

AFLOAT FOR UNITED

Tons

All Other Totals

2,525 37,358

158 10,412

2,683 47,770

Tons

All Other Totals

58 22,525

79 26,183

137 48,708

was 200; crude  
total daily average  
925, was 150,673.  
are 90 per cent of  
the total for

SEPTEMBER 1, 1925

THE INDIA RUBBER WORLD

735

## News of the American Rubber Trade

## Rubber Industry Outlook

THE rubber industry shows continued growth in stability. Automobile and motor truck output, which is basic to tire production, exceeded in July the peak production of any July on record, according to the figures of the Department of Commerce. The July record for cars and trucks made in the United States and Canada was 397,094.

Tire output is being maintained at high levels, about 118,000 daily in the Akron district, which is but little if any below the highest schedules of the year. Anticipating the possibility of future advances in tire prices, admittedly not high enough for the present rubber market, dealers have ordered tires in excess of their current needs. This condition explains the elimination of the customary summer seasonal reduction of tire output, but will perhaps correspondingly curtail schedules of production early next year.

The footwear and mechanical divisions are working well under ample fall orders at revised prices. The same is true of the lesser lines of miscellaneous products.

The high speculative prices for crude rubber which characterized July have given place to more moderate, although still high, levels. A decline in crude rubber prices below those at present prevailing would not be wholly unexpected in the industry. Should it occur tire prices would not advance further, according to a leading manufacturer.

## Financial

## Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Boston Woven Hose & Rubber Co.	Com.	\$1.50 q.	Sept. 15	Sept. 1
Goodyear Tire & Rubber Co.	8% Pr. Pfd.	2% q.	Oct. 1	Sept. 15
Goodyear Tire & Rubber Co.	Pfd.	\$1.75	Oct. 15	Sept. 15
Hood Rubber Products, Inc.	Pfd.	1 1/4% q.	Sept. 1	Aug. 20
Miller Rubber Co.	Pfd.	\$2.00 q.	Sept. 1	Aug. 15
Norwalk Tire & Rubber Co.	Com.	40c. q.	Oct. 1	Sept. 10

## New York Stock Exchange Quotations

August 24, 1925

	HIGH	LOW	LAST
Ajax Rubber, com.	12	11 1/2	11 1/2
Fisk Rubber, com.	23	21 1/2	22 1/2
Fisk Rubber, 1st pfd. (7)	106 1/2	105 1/2	106 1/2
Goodrich, B. F. Co. (1) com.	53 3/4	53 3/4	53 3/4
Goodyear Tire & Rubber, pfd. (7)	104 1/2	103 1/2	104 1/2
Goodyear Tire & Rubber, pr. pfd. (8)	107 3/4	107 3/4	107 3/4
Kelly-Springfield Tire, com.	17 1/2	16 1/2	17 1/2
Keystone Tire & Rubber, com.	23 1/2	23 1/2	23 1/2
Lee Rubber & Tire, com.	16	16	16
United States Rubber, com.	57 3/4	55 1/2	56
United States Rubber, 1st pfd. (8)	104	104	104

## Akron Rubber Stock Quotations

COMPANY	LAST SALE	BID	ASKED
Faulkless com.	40	39	42
Firestone com.	120	121	125
Firestone 1st pfd.	99 3/4	99 3/4	100
Firestone 2nd pfd.	99 1/2	99	100
General com.	275	278	295
General pfd.	102	102 1/2	...
Goodrich com.	57 1/2	...	...
Goodrich pfd.	99 3/4	...	...
Goodyear com. V. T. C.	32 1/2	33	33 1/2
Goodyear pfd. V. T. C.	103 1/2	...	...
Goodyear pr. pfd. V. T. C.	104 1/4	...	...
Miller com.	175	176	190
Miller pfd.	103	102 1/2	103 1/2
Star com.	17	17	15
Star pfd.	30	...	...
Swinehart com.	20	20	20
Victor com.	36	36	34
Victor pfd.	...	...	...

## United States Rubber Co.

Sales of the United States Rubber Co., for the six months ended June 30, 1925, amounted to \$92,530,127, an increase of \$14,755,431, or 18.97 per cent, over the corresponding period of last year. This increase resulted principally from a very substantial increase in unit sales of tires, the average selling prices being materially lower than for the corresponding period in 1924, notwithstanding the fact that prices were advanced in May, and again in June, 1925. Sales of other products were satisfactory, especially mechanical goods, which showed a substantial increase.

Net income amounted to \$8,860,674 before interest on the funded indebtedness but after all other charges including depreciation of plants; interest on the funded indebtedness amounted to \$2,985,470, leaving net income of \$5,875,204. This compares with \$4,422,487 for the first six months of 1924, an increase of \$1,452,717, or 32.85 per cent.

As of June 30, 1925, current assets amounted to \$124,073,421, consisting of:

Cash ..... \$ 9,582,328  
Accounts receivable, less adequate reserves for doubtful accounts .. 47,514,333  
Inventories of finished goods and raw materials, at cost, which was  
materially below replacement value ..... 66,976,760

Current liabilities amounted to \$17,751,028, consisting of current accounts payable, acceptances for importation of crude rubber, and accrued liabilities. There were no bank loans.

Contractual liabilities, representing forward commitments for raw materials and supplies, were at prices substantially below market, and as to quantities covered future requirements for conservative periods.

The high prices of crude rubber which have prevailed for several months have resulted in a substantial increase in the profits of the plantation companies owned by this company. As yet, no part of the profits of the plantation companies has been included in the income of the United States Rubber Co.

## The Goodyear Tire &amp; Rubber Co.

Production and sales of The Goodyear Tire & Rubber Co. for the six months ended June 30, 1925, were considerably higher than those of any like period in the history of Goodyear.

Net sales of Akron (exclusive of subsidiary companies) were \$78,130,645 for the first six months of this year. The total combined sales of the Akron, California, and Canadian companies and foreign branches were \$94,271,132 for the first half of 1925.

Earnings of the Akron company before interest and other charges were \$11,394,267. Net earnings after all charges but before payment of dividends were \$9,011,407 out of which \$3,000,000 has been appropriated to a special raw material reserve. After providing for dividends of \$2,828,628, the resulting surplus was \$25,981,355.

Cash in banks and on hand amounted to \$11,480,889. The ratio of current assets to current liabilities was 8 to 1.

Due to restriction of output, the current cost of crude rubber is very much in excess of the cost of production. The board of directors therefore deemed it advisable to appropriate out of the last six months' earnings a special raw material reserve of \$3,000,000 to partially provide against a possible and material decline in crude rubber values. This action is taken notwithstanding present inventories and commitments insure requirements of rubber for the balance of the year at prices considerably under today's market prices.

### The Lee Rubber & Tire Corporation

The Lee Rubber & Tire Corporation reports for the second quarter of the calendar year net sales of \$3,584,187 and net profits of \$152,685, which is at the annual rate of \$2.85 a share earned on the company's 214,837 shares of outstanding common capital stock of no par value. Net of \$152,685 compares with a net loss of \$39,348 in the second quarter of last year. The company's earnings for the quarter reflect in only a nominal degree the recent increase in tire prices. The effects of these increases will be shown in future earnings.

The company's consolidated profit and loss and surplus accounts for the quarter, ended last June 30, follow:

Net sales	\$3,584,187.41
Gross operating profit	162,679.30
Net profit	152,685.04
Surplus, June 30, 1925	2,111,246.89

### New Incorporations

**THE AMERICAN FUNCTURE PROOF TUBE CO.**, August 10 (Delaware), \$100,000, par value \$100 and 9,000 shares, no par value. Incorporators: S. L. Mackey, L. C. Christy and H. Kennedy, all of Wilmington, Delaware. Principal office with Corporation Service Company, 901 Market street, Wilmington, Delaware. To manufacture and deal in tires, tubes and other articles consisting wholly or partly of rubber or metal composition.

**ELMHURST RUBBER COMPANY, INC.**, July 25 (New York), 2,300 shares—600 shares, first preferred stock, par value \$100, 500 shares, second preferred stock, par value \$100 and 1,200 shares, no par value. Incorporators: George E. Jeandheur, 86 Woburn street, Reading, Massachusetts; Arthur W. Remond, 9516-85th avenue, Woodhaven, Long Island, and Arthur P. Hilton, 461 East 29th street, Brooklyn, New York. Principal office, Lawrence, Massachusetts. Rubber goods.

**GODFREY TIRE & GASOLINE CO., INC.**, June 22 (Illinois), \$3,000. Officers: Thos. J. Godfrey, Sr., 1724 Gayt avenue, East St. Louis, Illinois, president; Thos. J. Godfrey, Jr., 1029 Tudor avenue, East St. Louis, Illinois, vice-president and manager, and T. M. Godfrey, 1724 Gayt avenue, East St. Louis, Illinois, secretary-treasurer. Principal office, South Tenth and Market streets, East St. Louis, Illinois. To deal in tires and automobile supplies.

**J. G. KUENZINGER RIM & MANUFACTURING CO.**, July 23 (Delaware), \$500,000, par value \$10. Incorporators: F. R. Hansell, Philadelphia, Pennsylvania, E. M. MacFarland, Camden, New Jersey and J. Vernon Pinn, Philadelphia, Pennsylvania. Principal office with Corporation Guarantees and Trust Company, Ford Building, Wilmington, Delaware. To manufacture rims for vehicle wheels and automobile accessories.

**MOTOR REQUIREMENT CORPORATION**, August 3 (New Jersey), \$100,000. Incorporators: Charles E. P. Pearson, Harry E. Armstrong and Eleanor M. Ramsey, all of Camden, New Jersey. Principal office, 428 Market street, Camden, New Jersey. To manufacture and deal in automobiles and parts.

**NATIONAL AUTO SERVICE CORPORATION**, August 1 (New Jersey), \$100,000. Incorporators: William L. Griffin, Margaret McLaughlin and Archie Elkins, all of Jersey City, New Jersey. Principal office, Jersey City, New Jersey. To deal in automobile supplies.

**THE NATIONAL TIRE CO., INC.**, July 21 (Massachusetts), \$100,000. Incorporators and officers: Morris Stone, 43 Brookview street, Dorchester, Massachusetts, president; Arthur I. Kolonen, same address, treasurer; Jacob Cohen, 27 Westmore road, Dorchester, Massachusetts, clerk, and Frank Stone, 43 Brookview street, Dorchester, Massachusetts. Principal office, Brockton, Massachusetts. To manufacture and deal in tires, patches and miscellaneous rubber goods.

**THE PENNWCY CO., INC.**, July 29 (New York), 500 shares, no par value. Incorporators: Samuel E. Aronowitz, 36 State street, Leon Aronowitz, 764 Myrtle avenue, both of Albany, New York, and Howard E. Marston, Menands, New York. Principal office, Albany, New York. Rubber and gutta percha.

**REINFORCED RUBBER FLOOR CORPORATION**, July 29 (New York), 200 shares, no par value. Incorporators: Edward Herrmann, 150 East 72nd street, Walter P. Baumann, 516 Fifth avenue, and Ethel de Wells, 44 West 50th street, all of New York City. Principal office, Manhattan. Flooring and wainscoting of rubber.

**RHODE ISLAND TIRE SALES CO., INC.**, June 29 (Rhode Island), 50 shares, no par value. Incorporators: Wm. L. Nolan, Y. M. C. A., Providence, Rhode Island; Joseph H. Clancy, 15 Jason Terrace, Arlington, Massachusetts, and Edward Mathey, 247 Brown street, Waltham, Massachusetts. Principal office, Providence, Rhode Island. To deal in motor vehicle tires and tubes.

**THE UNION TIRE & RUBBER CO.**, April 21 (Ohio), \$750,000. Officers: Joseph B. Shepler, president and treasurer, and Louis L. Hinch, secretary and factory superintendent. Principal office, purchased the plant of the Knox Tire and Rubber Company at Mt. Vernon, Ohio. To manufacture tires, tubes and heels.

**UNIVERSAL MOTOR EQUIPMENT CO.**, July 27 (New Jersey), \$100,000. Incorporators: Aaron Kandek, John Marsik, Barnett Sigerman and John Wolkoff, all of Harrison, New Jersey. Principal office, Newark, New Jersey. To manufacture auto parts and accessories and import and export auto parts.

**VEUSVIUS COMPANY OF NEW JERSEY**, August 1 (New Jersey), \$100,000. Incorporators: Anna E. Knowles, Orange, New Jersey; Michael N. Chanalis and Patrick J. Maloney, both of Newark, New Jersey. Principal office, Newark, New Jersey. To manufacture and assemble all kinds of motors, supplies and accessories.

### The Rubber Trade in the East and South

H. N. Whitford, formerly with the Department of Commerce in charge of the government's investigation of rubber planting, is now connected with The Rubber Association of America and will continue his research work on growing rubber in new territories.

Arthur Gehrke, who since 1919 has been connected with The Fisk Tire Co., Inc., 250 West 57th street, New York, N. Y., is now branch manager at Utica, New York. D. H. Owen, temporary manager at Utica, has been transferred to the Rochester branch as city salesman.

Thomas A. Maguire, formerly connected with the rubber department of The Isaac Winkler & Bro. Co., 50 Broad street, New York, N. Y., has resigned in order to become president of the Goodyear Rubber Company of New York, 787 Broadway, New York, N. Y.

Robert Hursh has been appointed assistant general sales manager of The New Jersey Zinc Co., 160 Front street, New York, N. Y., succeeding Bushnell Bigelow who is now connected with the company's financial department. Mr. Hursh became associated with The New Jersey Zinc Co., in 1907, following his graduation from the Massachusetts Institute of Technology. He has held responsible positions with the company, and since 1922 was district sales manager for the Pacific Coast with headquarters in San Francisco.

E. L. Bullock & Sons, Inc., 99 John street, New York, N. Y., dealers in rubber compounding ingredients, are now Eastern sales representatives for the Imperial Oil & Gas Products Co., Pittsburgh, Pennsylvania, manufacturer of carbon black; the Mackay Products Co., Cleveland, Ohio, manufacturer of "Moldrite" rubber softener and binder; The Cochrane Chemical Co., Jersey City, New Jersey, manufacturer of mineral rubber; the United States By-Product Chlorides Co., Cleveland, Ohio, manufacturer of magnesia carbonate; and the Bullock Ochre & Clay Products Co., specializing in ochre, clay and colors. The first mentioned organization, which also represents one of the leading English manufacturers of red iron oxide, is now maintaining offices in Cleveland, Ohio, and Los Angeles, California.

The buildings and equipment of the British-American Manufacturing Co., Springdale, Connecticut, will be sold at a foreclosure sale on September 3, 12 o'clock noon. The property consists of over nine acres of land on which are a number of buildings of fireproof construction. The main factory building measures 220 by 60 feet. The plant was originally equipped to manufacture imitation leather, rubber, blankets, rubberized cloth, piano player cloth, baby pants, rubber aprons, percale sheeting, hard rubber goods, etc.

Emile V. Bitterli, chemical engineer and a director of La Compagnie Generale d'Electricité, Paris, France, was recently in the United States on business for his company.

Dr. F. Kuhlemann, director general of the Harburger Gummiwarenfabrik, Phoenix, A. G., Harburg, Germany, is in this country on business.

Press reports state that Federal Judge William Bondy has considered as inadequate the recent bids made for the property owned by the New York Rubber Co., Beacon, New York, and has ordered a resale of the plant on September 1. The bids in question were made by the Tucker Rubber Corporation of Buffalo, which agreed to pay \$50,000 and \$25,000 in addition for taxes, the second bid being by the Quaker City Rubber Co., of Philadelphia, for \$70,000 free and clear of all taxes.

E. B. Germain, president of the Dunlop Tire & Rubber Corporation of America, Buffalo, N. Y., who recently returned from Europe, has some interesting observations on the rubber situation. England, as a whole, is not smiling at the economic plight of the United States as a result of rubber restriction.

SEPTEMBER 1, 1925

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"As a matter of fact," said Mr. Germain, "the English motoring public and the British rubber manufacturers are up in arms against restriction. Their indignation is not based on tire prices alone. They see in a continuance of the present situation a passing of the control of the rubber business from under the British flag. Americans need not take up the cudgel in the interest of a revision of the Stevenson Act, Britishers are putting on all possible pressure in this direction.

"Also I cannot help but think that South America—Brazil—is the mother of crude rubber. What is to prevent Brazil from getting back into the rubber business on a better supervised and more businesslike basis and catering to American manufacturing wants? People who should know say that the Philippines are also climatically suited to rubber growing.

"It seems to me that the Stevenson Act will, in the long run, work out to the advantage of America. I am confident that American capital and enterprise will lift the United States above a condition where it is largely dependent upon any one nation for its raw rubber supplies."

Executives of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, report that the company's earnings for the quarter ended June 30 totaled \$44,432,200, as compared with \$40,031,000 for a similar period of 1924.

All of the plants of the Lee Rubber & Tire Corporation, Conshohocken, Pennsylvania, are working at capacity, with sufficient demand for solid tires alone to keep that division operating at capacity until October 1. In the second quarter of 1925 the company's sales of solid tires increased more than 250 per cent, as compared with a similar period of 1924. Plans are being made to enlarge this department, while on August 1 an increase was also made in the pneumatic tire output at the Conshohocken plant where such production is concentrated. Executives of the Lee organization believe that the rise in crude rubber prices will in some respects be of benefit to the whole rubber industry, as it will hasten the abandonment of manufacture of superfluous sizes and styles of both solid and pneumatic tires. The company looks for continued firm prices in the rubber market although a substantial reduction under present levels is regarded as probable.

Production of both cord and fabric tires has been begun at the plant of the Bedford Tire & Rubber Co., Bedford, Virginia. The sales force has been organized to cover Virginia and parts of West Virginia, Maryland, and Delaware. Executives of the new organization include: L. R. Gills, president; W. R. Dooley, vice-president and general manager; J. J. Scott, secretary; T. W. Richardson, assistant secretary; J. K. Walker, sales manager; and C. L. Brickman, factory superintendent.

Frank L. Asbury, temporarily superintendent of the Valley Mills, La Grange, Georgia, has been appointed superintendent of the Hillside Cotton Mills, also of La Grange. Both plants are subsidiaries of the Callaway Mills, Inc., manufacturers of tire fabrics, with main offices at 345 Madison avenue, New York, N. Y.

**U. S. Rubber Acquires New Plantation**

The United States Rubber Co., 1790 Broadway, New York, through the General Rubber Co., has purchased from Belgian interests a 6,300 acre rubber plantation in Kedah, Malaya, in the immediate vicinity of three of its present Malayan estates, of which there were previously six, totaling 22,500 acres. The new estate, of which a substantial part has been planted, is to be known as the Harvard Estate.

The combined holdings of the United States Rubber Co. in the East now comprise more than 117,000 acres, of which upwards of 75,000 acres will be planted by the end of 1925. The company is now said to be receiving from its own plantations approximately 20 per cent of its annual rubber requirements. The cost of administrating the new estate will be small on account of its proximity to the head offices of the United States Rubber Plantations, Inc., at Penang, Straits Settlements.

**Habirshaw Company Reorganized**

On August 15 Federal Judge A. N. Hand of the Federal Court expressed his approval of a plan for the reorganization of the Habirshaw Electric & Cable Co., Inc., thus bringing to a close the receivership of the concern. Arrangements which met with the consent of most of the creditors provided for a refinancing by W. A. Harriman & Co., when \$300,000 of new capital is furnished, the Harriman organization also receiving 20,000 shares of stock, the remaining to be divided among assenting creditors. Dissenting creditors will be allowed a cash settlement of from 42.81 to 54.25 per cent. George H. Walker, of Harriman & Co., will be chairman of the board for the new organization, which will be known as the Habirshaw Cable & Wire Corporation.

**Southern Brighton Mills Erecting New Plant**

Construction is well under way at the \$1,500,000 plant of the Southern Brighton Mills, at Shannon, Georgia, about seven miles north of Rome. The company's property consists of almost 1,000 acres of land, on which the main mill buildings will be erected, as well as a number of cottages for operatives. More than 100 of these cottages will be constructed now, with the probability that within a year the number will be doubled. It is expected that with the completion of the new plant, about January 1, the company will begin the production of cord tire fabric on a schedule of approximately 91,000 pounds a week.

The following officers of the Southern Brighton Mills are practically the same as those of the Brighton Mills of Passaic, New Jersey: Henry J. Haigh, president; Timothy J. Kelly, vice-president; and Thomas M. Gardner, secretary. R. A. Morgan has been appointed agent in charge of this southern factory.

**The Rubber Trade in New Jersey**

Rubber conditions at Trenton, New Jersey, show a decided improvement and most of the plants are running to capacity. There has been an increase in the production of tires and tubes of both the high pressure and balloon types. The mechanical departments of the mills also report more orders. One concern was compelled to double the working force of the tubing department and also greatly increase the number of hands in the garden and fire hose departments. Orders for hose are running well at all the factories. Plants turning out rubber tile are pleased with the orders on hand. There has been no decrease in the output of soles and heels. Hard rubber goods manufacturers are well pleased with the outlook.

The annual outing of the office men of the Murray Rubber Co., Trenton, New Jersey, was held last month at Manasquan, New Jersey. Sports and contests were held and 75 articles were donated as awards. The games were followed by a clam bake. The office girls were taken to Asbury Park on the same day and entertained at dinner. Norman Conover, assistant secretary of the Murray Co., was in charge of the arrangements.

The plant of the Trent Rubber Co., Trenton, New Jersey, will be sold at receiver's sale on September 11. There is a \$110,000 mortgage on the property besides a number of other debts. Charles F. McCoy is the receiver.

The factory and equipment of the Bergougnan Rubber Co., Trenton, New Jersey, was again offered for sale on August 25, but there were no bidders.

The Mechanics National Bank, Trenton, New Jersey, has filed a suit in the New Jersey Court of Chancery for an accounting by the Globe Rubber Tire Manufacturing Co., of Trenton, of an amount due on a mortgage covering the plant, and negotiated to secure a 6 per cent bond issue. There has been no interest paid, according to the petition, which requests that the plant be sold if settlement is not made.

More than 150 employees of De Mattia Brothers, Inc., Garfield, New Jersey, motored on July 18 to Singac, New Jersey, where the company's annual outing was held. After a morning devoted to frolic, followed by a chicken dinner, the employes, through Homer M. Davis, shop superintendent, presented Peter D. Mattia with a hunting coat and a leather traveling bag. Edgar Rankin, foundry superintendent, in behalf of the foundry employees, presented Barthold de Mattia with a gold watch charm, symbolic of

Jersey, will shortly remove its radio supply station on East Hanover street to its plant on Factory street. Tires and tubes will be sold only at the United Tires Stores Co., 10 and 12 East Hanover street.

August 17, 1925, marked the eighth anniversary of the opening of the rubber service laboratory of The Roessler & Hasslacher Chemical Co., Perth Amboy, New Jersey. This laboratory was one of the first of its kind dedicated to the control and applica-



Annual Outing of De Mattia Bros. Employes on July 18, at Singac, N. J.

the Order of Elks. During the afternoon numerous athletic contests were held and prizes awarded for each event.

Business continues to increase with the Combination Rubber Co., Trenton, New Jersey, where production for May, June and July was the largest in the history of the concern. The company announces that there is a larger demand for regular cords than balloons and that profits are larger. Each month shows a slight increase in orders.

The Murray Rubber Co., Trenton, New Jersey, announces that July production and sales were the largest in its history. The plant is operating twenty-four hours a day with an average daily output of about 3,000 tires. The company recently doubled its tube department to keep up with orders. There has been a steady increase in the manufacture of balloon tires. The garden and fire hose departments were recently placed on double shifts and the other mechanical departments are also busy.

The Thermoid Rubber Co., Trenton, New Jersey, is very busy on orders for brake lining and other mechanical goods. Future business is promising.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has begun the manufacture of "Hamiltile," a new rubber tile flooring for hotels, offices and apartments. The company is meeting with success in its new production.

The Essex Rubber Co., Trenton, New Jersey, has not experienced a dull month since the first of last January and is looking for a good fall and winter season.

Joseph S. Papier, proprietor of Joe's Tire Shop, has purchased the flatiron building on South Warren street, Trenton, New Jersey. Mr Papier is having extensive alterations made and will have the first "drive-in" exclusive tire shop in Trenton. Special departments will be devoted to batteries and radios.

The two-story building of the Auto Tire Vulcanizing Shop, Market and Jackson streets, Trenton, New Jersey, was recently destroyed.

The Fineburg Auto Tire & Accessories Co., Trenton, New

Jersey, will shortly remove its radio supply station on East Hanover street to its plant on Factory street. Tires and tubes will be sold only at the United Tires Stores Co., 10 and 12 East Hanover street.

tion of the company's products in the rubber industry. The services of R. & H. rubber experts are devoted without charge to the solution of the special technical problems of users of R. & H. products and to the study of rubber testing problems of scientific and manufacturing interest.

Evidence of a demand for tires beyond its capacity for immediate production was given recently by the Michelin Tire Co., Milltown, New Jersey, which released its entire force of 200 salesmen for vacations covering two weeks late in July. Although the salesmen usually take their vacations in September, orders have piled up so steadily that it appeared advisable to release them before the usual time.

#### Braender Buys Howe Equipment

The Braender Rubber & Tire Co., Inc., Rutherford, New Jersey, has purchased the complete tire and tube manufacturing equipment of the Howe Rubber Corporation, formerly at New Brunswick, New Jersey, and will build Howe tires, and later inner tubes. Executives of the Braender company include: Paul Guenther, president; Russell G. Cory, vice-president; Lysander E. Wright, vice-president and general manager; Samuel Klein, secretary and treasurer; J. Budd Bleiler, director of sales; R. E. MacDonald, factory superintendent; and Fred L. Braender, purchasing agent. Among the department heads who were formerly connected with the Howe organization are: Harry Constantin, Fred Schumacher, Alan Ely, J. Hartlander, and B. L. Welsh.

#### The Rubber Trade in Rhode Island

Sale of the Bourn Rubber Co., Providence, Rhode Island, to Victor B. Phillips of Cleveland, Ohio, for \$150,000 was authorized August 18 by the court.

Zenas W. Bliss, the receiver, testifying in court at the hearing, declared that the plant could not be operated at a profit and he

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did not believe it would bring a higher price if sold piecemeal. If the purchaser fails to comply with the terms of the decree within 30 days, he shall forfeit the \$25,000 deposit.

The Millville plant of the Woonsocket Rubber Co. reopened August 13, after a three weeks shut-down due to a break in the machinery. After a thorough overhauling of the plant, the calender and cutting departments resumed work on the 13th; the bootmakers reporting the following morning, and the packing department started in August 18. On the 24th notices were posted in the Alice Mill at Woonsocket and at the Millville Mill, advising of a wage adjustment on the downward scale and the return to a five-day-a-week operating schedule.

The Ked division of the National India Rubber Co., Bristol, Rhode Island, which was shut down July 24 for the regular annual vacation period, resumed operations August 10. The operating schedule, however, was on a four-day-a-week card instead of five days as had been the case for some months previously. It was stated, however, that the total number of pairs produced in the four days will be the same as the weekly number on the old five-day schedule. Maurice C. Smith, Jr. has been appointed factory manager of the National India Rubber Co., Bristol, Rhode Island, to succeed Edward I. Cooper, who was recently appointed assistant to George Schlosser, general manager of the footwear factories of the United States Rubber Co. John A. Wahlgren, formerly of Bristol, has been appointed general sales manager with headquarters in New York.

To relieve present working conditions and to give more floor space, a new plant addition is being built by the Moore Fabric Co., Inc., Pawtucket, Rhode Island, at an estimated cost of \$30,000. Construction work already under way is progressing rapidly. Established four years ago, the firm has progressed steadily in the production of elastic fabrics, and its present bookings are said to insure full time for several months.

High rubber prices have caused an epidemic of thefts of rubber goods, especially of second-hand tires, and a boom in business of the junk men. Many reports of tire thefts have been received by the police, not only of Providence but in all the cities and towns of the State. Junk men with unsalable second-hand rubber on hand had visions of an El Dorado, and three cents a pound was quoted on old rubber, which previously would not have brought more than one-half cent.

In accordance with the laws of Rhode Island, the Alling Rubber Co., Westerly, Rhode Island, has filed an amendment to its charter with the Secretary of State, changing its name to the Alling Rubber Co. of Rhode Island Inc.

Two warehouses, part of the property of the O'Bannon Co., in Phillipsdale, East Providence, have been sold by the Hood Trading Corp., in connection with the settlement of the property. One warehouse and about two and a half acres of land were purchased by Abraham Bazaar of Providence, while the other warehouse was sold to Joseph A. Grimes, also of Providence.

Hayward Rubber Co. has given up its retail store at 71 Union street, Providence, and concentrated at 335-337 Main street, Pawtucket.

The Ultimate Tire & Rubber Co., 112 Fountain St., Providence, is conducted by John D. Cranston, of 59 Wheeler avenue, Edgewood, according to his statement filed at the office of the City Clerk.

#### Corporation Taxes in Rhode Island

Twenty-four Rhode Island concerns affiliated with the manufacturing of rubber goods have been assessed on a corporate excess of \$100,000 or more, according to the State Board's assessment to pay the \$4 per \$1,000 tax on a total valuation of \$17,730,619.06. The corporate excess, upon which the tax of \$4 per \$1,000 is levied, represents the difference between the total value of the corporation in Rhode Island and the assessed value by the city or town

in which such property is located, less any exemptions of non-taxable property in this State.

Among the rubber manufacturing corporations assessed are the following: American Electrical Works, Phillipsdale, \$2,133,167.86; American Multiple Fabric Co., \$122,329.58; American Wringer Co., Woonsocket, \$537,608.70; Anchor Webbing Co., Pawtucket, \$108,731.41; Arbeka Webbing Co., Pawtucket, \$119,969.13; Atlantic Tubing Co., Cranston, \$137,654.53; Carolina Co., Carolina, \$128,146.43; Collyer Insulated Wire Co., Pawtucket, \$855,651.46; Davis-Jones Insulated Wire Co., Pawtucket, \$138,451.90; Davol Rubber Co., \$828,748.14; Direct Rubber Co., \$116,456.94; Everlastik Inc., Chelsea, Massachusetts, \$223,618.34; Fisk Rubber Co., New York, N. Y., \$1,438,187.46; Glendale Elastic Fabric Co., Easthampton, Massachusetts, \$155,108.04; The B. F. Goodrich Rubber Co., Akron, Ohio, \$147,044.07; Hamilton Webb Co., Hamilton, \$119,529.19; Hope Webbing Co., Pawtucket, \$1,208,755; Mechanical Fabric Co., \$530,215.65; Moore Fabric Co., Pawtucket, \$151,330.61; National India Rubber Co., Bristol, \$722,174.47; Phillips Wire Co., Pawtucket, \$2,341,213.50; Providence Insulated Wire Co., \$223,970.57; Tubular Woven Fabric Co., Pawtucket, \$544,328.80; United States Rubber Co., of New York, \$1,717,981.40; Washburn Wire Co., Phillipsdale, \$845,904.90.

#### The Rubber Trade in Massachusetts

Practically all rubber plants in Massachusetts are busy, and the outlook is very promising. Several price advances in all lines of rubber goods have served to maintain demand throughout the summer, which is usually a period of seasonal dullness. The rise in crude rubber has served not only to reduce cheap competition, but to restore profitable prices on a basis of present raw material costs. Most of the larger companies, however, are still operating with low-priced rubber bought in quantity in anticipation of the rise.

Footwear plants are again in operation, after the usual two-weeks' summer shut-downs, with a good volume of autumn and winter business in sight. Heel and sole output is increasing, the improved tan sole having become an important factor in the trade.

Tire and inner tube production continues at little if any more than 10 per cent below capacity, which is a remarkable summer record. The proportion of balloon tire output steadily increases. Automobile topping demand has fallen off somewhat, and does not reach its former proportions at any time, because of the increased percentage of closed cars being manufactured.

Mechanical rubber goods are active with every indication of continued good business at fair profits. Railways, mines and industrial plants generally are all heavy buyers. The call for druggists' sundries and novelties continues satisfactory. Weather-proof clothing manufacturers are now busy with orders for the autumn trade.

Insulated wire mills are operating practically at capacity, copper and crude rubber prices thus far having no adverse effect on the demand for new building construction. Reclaimers have come into their own again in the role of rescuers of the rubber industry and are very active.

The Beckwith Manufacturing Co., 111 Summer street, Boston, Massachusetts, is specializing in the production of Vulco-Unit box toes for leather shoes, and utilizing in their manufacture the water dispersion process. After saturation, the rubber felt used as shoe stiffeners is passed through vulcanizing chambers, the resulting product being said to meet all requirements.

The Hamilton Emery & Corundum Co., Chester, Massachusetts, is enlarging its plant by the erection of a building measuring 100 by 40 feet. Frederick H. Jones, formerly connected with the Tyre Rubber Co., is now treasurer of the Hamilton organization.

Early this year a complete and successful reorganization of the sales department of the Boston Woven Hose & Rubber Co., Cam-

bridge, Massachusetts, was effected. The change was from a departmental to a territorial system, and the correspondents who formerly handled individual lines now handle all of the firm's products in their respective territories. The United States and Canada are divided into six territories with a correspondent in charge of each and one assistant.

Indications for a lively winter in sports may be gleaned from the orders now being received by The Converse Rubber Shoe Co., Malden, Massachusetts. This firm is receiving many orders from sporting goods houses for athletic shoes and the largest among these is one from A. G. Spalding & Bros., for 20,000 pairs of athletic shoes. The Converse company have been making these shoes for Spalding for years but this order is the largest ever received.

The National Association of Cotton Manufacturers, 80 Federal street, Boston, Massachusetts, will hold its annual meeting on October 14 and 15 at the Copley-Plaza Hotel, Boston, Massachusetts. An interesting program has been prepared, while two sessions have been planned in order to provide members with opportunity for discussion and free interchange of opinion.

#### Brockton to Test Rubber Brick Paving

Rubber paving bricks made from worn-out automobile tires are soon to be given a trial at Brockton, Massachusetts. Superintendent of streets Arthur Creedon states that a section of Main street where traffic is heavy will be paved with the new type of bricks to test their durability.

The rubber paving brick is the invention of former state representative A. Webster Butler, of West Bridgewater, Massachusetts. It is made by cementing and pressing together rectangular pieces cut from discarded automobile casings and holding them under pressure of a metal staple clamping the brick lengthwise. The result is a block of rubber and fabric of the same dimensions as the standard building brick and quickly laid in cement or asphalt. When set, the individual pieces of tire are vertical in the road. Thus the wear comes against the edges, and an unusually good traction surface is provided.

#### Hood Rubber Co. Sales Convention

The six-day sales convention of the Hood Rubber Co., Watertown, Massachusetts, during the week of July 27 was attended by over 200 branch managers and salesmen, and was the most successful gathering ever held by their organization.

The visitors had rooms at the Pemberton Inn, Pemberton, and the Atlantic House, Nantasket. Meetings were held daily at the factory from 11 a. m. to 5 p. m. Production methods were covered by L. Lawrence Muench; selling policies by W. W. Duncan, general sales manager, and advertising by A. R. Howell, sales promotion manager. Opportunity was afforded to inspect the plant, where 7,000 skilled workers are employed in the 96-acre factory, with a capacity production of 85,000 pairs of rubber and rubber and canvas footwear daily.

Numerous social affairs were provided, including an outing and clambake at Oppechee Inn and a banquet at Pemberton Inn, at which F. C. Hood, president of the company, said the firm was having the most prosperous year in its history.

#### TENTH EXPOSITION OF CHEMICAL INDUSTRIES

Extensive preparations are being made for the Tenth Exposition of Chemical Industries, which will be held at the Grand Central Palace, New York City, during the week of September 28 to October 3. Many societies and associations connected with the chemical industry are arranging to attend or send representatives, while especially large delegations are expected from the eastern sections of the American Chemical Society.

**"PNEUMATIC TIRES," BY HENRY C. PEARSON.** An encyclopedia of tire manufacture, repair, rebuilding, machinery and processes.

#### The Rubber Trade in Ohio

There are indications of a considerable falling off in tire production in the near future, probably in September, due to the rapid pace at which the industry has operated during the first seven months of the year. A surplus is being piled up, following a slackening in demand from dealers, and manufacturers are striving to curtail operations as far as possible to conserve supplies of crude and keep down the price of rubber.

Production has kept up during July and August at a surprising rate, with most of the well entrenched rubber companies operating at capacity. Total tire output in the Akron district continues around 115,000 casings and 150,000 inner tubes a day. Tire output for the six months ended June 30 was in excess of 30,000,000, as compared to less than 24,000,000 for the same period in 1924. A gain of 30 to 35 per cent was registered in the second quarter over the preceding quarter.

Even though there is as much as a 20 per cent curtailment in tire manufacturing during the last quarter of the year, the rubber industry will doubtless lead all other major industries in 1925, both from the standpoint of gross business and profits. The most optimistic leaders in the industry failed to forecast the tremendous gains made during the first six months of the year, as revealed by reports on production, sales and earnings.

It is estimated that manufacturers will pay considerably over \$300,000,000 for rubber this year, in view of recent price increases, against \$174,361,427 in 1924. Four increases of 40 to 60 per cent in prices of automobile tires and tubes since May 1 have helped to counteract the rising cost of raw materials. This action, coupled with a huge sales volume, has enabled the well entrenched manufacturers to make the best record of earnings in years.

The B. F. Goodrich Co., on total sales of \$60,400,000, shows net earnings of \$7,106,615, as compared with profits of \$8,822,504 for all of 1924. Sales volume was \$10,000,000 greater than the same period of 1924. Earnings thus far reported are equivalent to \$9.84 cents a share on the common stock. The company has resumed dividends at the rate of \$4 annually, after a suspension since February, 1921.

A gain of nearly \$30,000,000 is shown by the Goodyear Tire & Rubber Co. over the first six months of 1924. Net profits were \$9,011,467, against \$4,173,120 for the first six months of 1924.

While the Firestone Tire & Rubber Co. and Miller Rubber Co. do not issue semi-annual reports, it is learned on good authority that the business of these companies has increased more than 30 per cent over the first six months of 1924.

Sales of the India Tire & Rubber Co. were 89 per cent greater than a year ago. The Star Rubber Co. announces that new peaks were made for the first half year's total sales, and report sales during June and July higher than any month for the last five years.

Sales in July were the largest in the history of the Mohawk Rubber Co. Earnings for the first seven months of the year were sufficient to pay the entire regular dividend, also back dividends on the 7 per cent preferred stock, leaving \$2.35 a share on the common stock. Directors have declared a 1 per cent back dividend on accrued preferred stock dividends. This leaves only 2 per cent still due on deferred payments. "From all indications, the month of August will be as good, if not better," declares President Miller.

Akron rubber companies are spending approximately \$3,500,000 for building construction during 1925. It is the largest expansion program launched since the post war boom period, and is fully justified by the urgent need for more factory space, due to increased business this year, and prospects for a good demand for rubber products in the coming years.

"The Goodyear Tire & Rubber Co. is erecting a new factory unit, designed for production purposes, to be five stories high with 198,500 square feet of floor space and costing \$800,000.

The new \$2,000,000 warehouse, now being built by The B. F. Goodrich Co., adjoining its main plant on S. Main street, will be completed about November 1.

Ground was broken a few weeks ago for the new warehouse of the Firestone Tire & Rubber Co. which will cost \$400,000.

J. D. Tew has been appointed assistant works manager of The B. F. Goodrich Co., Akron, Ohio, in charge of all production departments, functioning directly under B. G. Work, president of the organization. Since the resignation of H. K. Raymond, vice-president in charge of production, Mr. Work has been acting as general manager. Mr. Tew first became connected with the Goodrich company in 1906, and since 1918 he has been in charge of cord tire production at the Goodrich factory.

T. Henry Williams has joined the engineering force of the Akron Rubber Mold & Machine Co., Akron, Ohio. Formerly associated with the Goodrich organization and later with the Birmingham Iron Foundry Co., Mr. Williams has had much experience in engineering work for the rubber trade, while he has also designed a number of rubber machines now being used successfully by tire manufacturers.

H. Muehlstein & Co., Inc., dealers in crude rubber scrap and with main offices at 41 East 42nd street, New York, N. Y., have moved their Akron offices to 1111 Akron Savings and Loan Building, Akron, Ohio.

C. B. Hudson, formerly connected with the Goodrich organization, is now chief engineer of the Akron Standard Mold Co., Akron, Ohio, succeeding H. D. Reichard, who resigned to accept a position with the Racine Horeshoe Tire Co., Racine, Wisconsin.

On the night of August 19, a fire at the Barberton plant of the Seiberling Rubber Co., Akron, Ohio, destroyed the crude materials stock of the Kemitex Products Co., a subsidiary of the Seiberling organization. Tire, tube, and heel production, however, will not be hampered and also none of the Seiberling company's employees will be thrown out of work. Kemitex window shade production will also be resumed within two weeks.

A considerable increase in factory output is expected to be made at the General Tire & Rubber Co. plant, after a new factory addition has been finished. Plans are now being drawn for the improvement. President William O'Neil expects 1925 to be a banner year for General.

Although crude rubber has declined it is said there will be no change in tire prices at least until after November 1. The larger companies buy their crude rubber seven or eight months in advance, and an immediate change in the raw material market could not affect tire price schedule for some time. There is a growing belief among Akron manufacturers that the price of crude rubber will drop further during the coming months. Standardization practices and production limitation are beginning to curtail consumption of crude rubber.

C. H. Sorrick, Jr., Akron, Ohio, has established the Industrial Crayon Co., with offices and factory at 82 S. Case avenue, and will manufacture crayons in all colors for use in the rubber industry.

Hal V. Strawn, who for seven years was in charge of the advertising department of the United States Rubber Co., New

York, N. Y., has joined the advertising department of the Firestone Tire & Rubber Co., Akron, Ohio.

Phillip J. Kelly has been named manager of sales personnel and advertising for the Mason Tire & Rubber Co., Akron, Ohio. He was with the Goodyear Tire & Rubber Co. for about six years.

Operations at capacity have been maintained throughout the summer by The Seiberling Rubber Co., Akron, Ohio, the plant output being 3,000 tires and 4,000 tubes daily. The company has also broken ground for a \$200,000 factory addition which will bring production up to 5,000 tires a day. The company reports excellent business and a steady development week by week. June represented the first month for sales to reach \$1,000,000, while the July figures approached \$1,500,000.

The Tuscan Tire & Rubber Co., Carrollton, Ohio, reports an excellent business during the past year in druggists' rubber sundries, while the present tire demand necessitates full capacity operations.

Steady increase in production is reported by The Triangle Tire & Rubber Co., Canton, Ohio, the output being at present about 400 casings a day. In addition to high pressure tires, the company is now manufacturing a full line of balloon sizes. M. C. Wyatt is assistant treasurer.

J. A. Miller has succeeded H. R. Greenlee as treasurer and general manager of The Erie Rubber Corporation, Sandusky, Ohio. Executives of the company state that the past six months have been profitable ones for their organization, and that prospects for the remainder of the year are very bright.

Following reorganization, The McKone Tire & Rubber Co., Millersburg, Ohio, reports its executive personnel as being: E. B. McKay, president, treasurer, and general manager; O. S. Tweedy, sales manager; W. J. Rennick, secretary and assistant treasurer; R. C. Gunther, factory manager; J. A. McGrath, factory superintendent; and P. H. Slamin, chemist. The company's plant is now being run at capacity, and new machinery has been installed. The company manufactures McKone and Wright tires and expects eventually to produce over 1,000 casings a day and a corresponding number of tubes.

#### Goodrich Co. Buys Rubber Ace Inner Tubes

The patents, manufacturing and sales rights for the production of Rubber Ace puncture proof pneumatic inner tubes have been purchased by The B. F. Goodrich Rubber Co., Akron, Ohio, and such tubes will be manufactured and marketed by the Goodrich organization. The patented Rubber Ace product comprises practically a sponge rubber type of inner tire, made in two sections, the main unit conforming to the shape of the outer tire, while a wedge, under suitable compression, provides the proper fit in the casing.

#### Firestone-Liberia Rubber Plantations

Liberia, the tiny negro republic on the southwest coast of Africa, looms as a source of America's future crude rubber supply, as a result of negotiations just completed between that government and Harvey S. Firestone, president of the Firestone Tire & Rubber Co., Akron, Ohio.

Edwin Barclay, secretary of State of Liberia, was in Akron August 17 and 18 to work out final details of a tentative agreement for the leasing by Mr. Firestone of 1,000,000 acres of rubber land in Liberia. After receiving assurance from Secretary Barclay that President Charles D. B. King and other officials of Liberia were ready to approve his proposition, Mr. Firestone announced that he would place the entire million acre tract under cultivation. He is planning to send a large force of men there to prepare the land for growing rubber trees.

While no official announcement could be obtained, it is learned on good authority that a \$100,000,000 corporation will shortly be formed to operate the Liberian plantations and other rubber growing projects on a gigantic scale, which will assure American manufacturers of an adequate future supply of rubber.



T. Henry Williams

### Rubber Manufacturer Returns from Foreign Trip

W. O. Rutherford, vice-president of The B. F. Goodrich Co. and president of the Rubber Association of America, recently



W. O. Rutherford and Son

arrived in New York on the steamship Homeric with his son John C. Rutherford after a two months' trip abroad where they visited England, Scotland, France and Germany. Both men are good golfers, and enjoyed playing the game on some of the famous Scotch golf courses.

### Changes in Faultless Rubber Co. Personnel

An increasing volume of business and excellent prospects for the remainder of the year were reported at the recent annual meeting of the Faultless Rubber Co., Ashland, Ohio. On this occasion the board of directors was increased from nine to twelve members, these including the following:

John S. Fleek, of the firm of Hayden, Miller & Co., Cleveland.  
C. D. Hubler, treasurer of the Faultless Rubber Co.  
J. C. Lawrence, president of the Faultless Rubber Co.  
P. A. Myers, vice-president of the Faultless Rubber Co.  
John C. Myers, of F. E. Myers & Bro. Co., Ashland.  
Guy C. Myers, of F. E. Myers & Bro. Co., Ashland.  
T. W. Miller, chairman of the board of the Faultless Rubber Co.  
J. L. Miller, secretary of the Faultless Rubber Co.  
E. F. Miller, factory manager of the Faultless Rubber Co.  
J. R. Nutt, president of the Union Trust Co., Cleveland.  
F. Parker, president of U. S. Whip Co., Westfield, Massachusetts.  
L. B. Williams, of the firm of Hayden, Miller & Co., Cleveland.

Several important changes have also been made in the company's executive personnel, T. W. Miller having been succeeded as president of the organization by J. C. Lawrence, while C. D. Hubler becomes treasurer. Mr. Miller, who has been president and treasurer since 1906, has been appointed chairman of the board of directors and will in that capacity continue to direct the company's policies. J. C. Lawrence, the new president, was from 1912 to 1921 connected with the Goodrich organization, acting at one time as assistant treasurer. Becoming in 1922 president and treasurer of the Racine Horseshoe Tire Co., he recently resigned that position in order to accept the presidency of the Faultless organization. C. D. Hubler, the newly appointed treasurer, has been connected with the Faultless company for a number of years.

W. H. Balch, for fifteen years holding the position of sales manager, and since 1920 that of third vice-president, has recently retired from active duty with the organization.

### The Rubber Trade in the Midwest

Thomas E. Wilson & Co. and The Western Sporting Goods Manufacturing Co., both of Chicago, Illinois, have consolidated and is now the Wilson-Western Sporting Goods Co. The new organization is headed by L. B. Ieely, former president of the Wilson Co., while D. Levinson, becomes vice-president, W. L. Robb, and G. H. Morris, sales director and director of advertising and sales promotion, respectively. S. Levinson, former

president of the Western company, and I. B. Ungar, former factory superintendent, have also joined the new organization. Executive offices of the Wilson-Western Sporting Goods Co. will be maintained at 2037 Powell avenue, Chicago, Illinois, the former headquarters of the Wilson company, while the baseball factory, formerly run by the last-mentioned organization, will continue in operation at Schenectady, New York.

The Johnstone Tire & Rubber Co., La Porte, Indiana, reports that its business has practically doubled, as compared with a year ago, while profits have increased accordingly. The plant has been running since January 1 on a schedule of two ten-hour shifts, the demand for the company's pneumatic tires for buses having been particularly good. G. J. Dittmar, formerly connected with the Ajax organization, is the Johnstone district sales manager for northern Indiana.

Executives of the Century Rubber Works, 54th avenue and 18th street, Chicago, Illinois, report that Mark Smith, who has been connected with their organization for the past eight years, has been transferred to the sales department, his territory to cover the Middle West and South.

Robert E. Clayton, formerly connected with the New Jersey Zinc Co., is now chemist and assistant superintendent of the new rubber heel plant maintained by the International Shoe Co., Hannibal, Missouri.

### Midwestern Tire and Tube Industry

According to census statistics, six midwestern states, including Wisconsin, Michigan, Illinois, Indiana, Ohio, and Kentucky, employed 28 per cent of the industrial wage earners of the country, paid out 31 per cent of the national industrial wage bill, and turned out 30 per cent of the products manufactured in the United States. It is also shown that in value the state of Ohio supplies 60.8 per cent of all the tires and tubes made in the United States, and Wisconsin 4.5 per cent. In estimating the number of manufacturers in each state, the report claims that the tire and tube producers of Ohio rank at 7.7 per cent and those of Wisconsin at 1.7 per cent.

### General Superintendent of the Fisk Western Plant

Elmer E. Dearth, recently appointed general superintendent of the western plant of the Fisk Rubber Co., at Cudahy, Wisconsin, has earned notable advancement through marked ability and hard work during his comparatively short career in the rubber industry.

Born in Lowell, Massachusetts, February 4, 1891, he was educated there and graduated from the Lowell Textile School in 1912 in the course of textile chemistry and dyeing. That year he accepted a position in charge of testing and inspection of fabrics for the Federal Rubber Co., Cudahy, Wisconsin, now the western plant of the Fisk Rubber Co. Subsequently his duties were enlarged to include those of assistant chemist, and he was also placed in charge of factory specifications for control of product.

In 1916 he resigned to accept a position with the Lee Tire & Rubber Co., Conshohocken, Pennsylvania, covering the control of factory specifications, cost accounting and schedule of production. Subsequently he was appointed industrial engineer.

He again resigned his position in 1918 to become assistant treasurer of the New Jersey Car Spring & Rubber Co., Jersey City, New Jersey, later being advanced to the position of secretary and

Elmer E. Dearth



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treasurer. In this capacity he served until early in 1921, when the company became involved in financial difficulties incident to the deflation which occurred following the post-war boom. Thereafter he served as general manager of the company under the receiver until liquidation of the firm's affairs was well started.

Meanwhile he was offered an opportunity to return to the Federal Rubber Co., which he did at the beginning of 1922 as assistant to the factory manager. His appointment as general superintendent of the Fisk plant at Cudahy, Wisconsin, occurred June 15, 1925.

### The Rubber Trade on the Pacific Coast

In only a few lines has there been any midsummer let up in sales of rubber goods on the Pacific Coast. One of the conspicuous exceptions to the general forward movement has been that of hard rubber automobile battery boxes. Two explanations are given, one that Coast purchasers had been induced, or had persuaded themselves, in view of the rise in rubber, to overstock and the other is that battery replacement is becoming more and more a winter feature. Battery boxes are still made wholly in the East for Coast trade, the hard rubber ones being supplied chiefly by the United States Rubber Co., The B. F. Goodrich Co., and the Hood Rubber Co. Mineral rubber or composition boxes for lower cost batteries are supplied by some midwestern concerns. Battery building is a developing industry on the Coast, but poorly financed concerns find it hard to compete with the nationally-advertised makes; and one concern in the Southwest that had a large output surprised the trade by closing its doors last month.

Mechanical rubber goods continue in strong demand. Unlike tires, they have not been subjected to sharp price advances on account of the soaring cost of rubber. The trade understands that the bulk of goods is manufactured on a basis of 45 cent crude stock, and the impression is general that no advances are likely unless rubber should rise again to the July peak.

Judging from the mounting automobile and truck registrations, the saturation point on the Coast is still remote and the prospects for a brisk trade in casings and tubes are excellent. California in August passed the 1,300,000 mark, Oregon is certain of 240,000 for 1925, and Washington is sure of 350,000, as compared with 307,000 last year. In Arizona the first six months of 1925 showed 59,809 compared with 57,828 for the whole of 1924.

In its northwest field, the United States Rubber Co. has achieved a general average increase in tire sales during the past six months of 90 per cent over the corresponding period in 1924. In the southwest the average increase scored in the same period was 71 per cent. The ratio of balloon tire sales to cord sales continues to widen in favor of the low-pressures.

The San Francisco sales force of the Goodyear Tire & Rubber Co., of California, ended a three-months' tube selling contest on August 8, when the losing team sponsored by J. K. Hough tendered a banquet to the winning team that had General Superintendent Harry E. Blythe as patron. Branch Manager Ralph Daniels was master of ceremonies. The winners had sold more tubes in one month than needed to make up their quota for three months, and the losers had also broken all previous sales records.

J. C. Hughes has been reelected president of the Coast Tire & Rubber Company, Oakland, California; L. S. Budo is vice-president, and E. H. Russell secretary. In a report to the stockholders it is stated that, despite a shut-down of several months, the unfavorable conditions of a year ago had been reversed and on June 30, 1925, the quick assets were \$213,241 and the current liabilities but \$22,300. All dividends on the preferred stock had been paid off up to July 1, 1925, out of net operating profits. The manufacture of balloon tires was begun in July.

The Chanslor & Lyon Co., one of the largest tire and automo-

tive products distributors in the country, reports a large increase in production of C. & L. tires made by the company at its plant in Oakland, California.

The California Wire & Cable Co. has nearly perfected its plans for a plant for the manufacture of rubber-covered insulated wire at Pittsburg, Contra Costa county, near San Francisco. It now operates a well-equipped factory at Orange, Orange county, and makes a considerable amount of weatherproof wire having two and three layers of braid, coated, and polished; and in sizes from No. 18 to 2,000,000 circular mils. Scarcely three years old, it is said to supply 90 per cent of the weatherproof wire used in the southwest.

The Indoleum Products Co., Inc., with executive offices in the Empire State Building, Spokane, Washington, plans the manufacture of floor covering made from scrap tires. The organization will build a plant at Post Falls, Idaho. Executives of the new company include: David H. Anderson, president; Howard I. Somers, vice-president; and George B. Reed, secretary-treasurer.

The American Rubber & Tire Co., Akron, Ohio, is the latest mid-western concern to actively seek coast trade. It has established a Southwest branch at 1211 S. Hope street, Los Angeles, California.

The much-despised worn out tire has at last come into its own on account of the rise in crude rubber. Junk men who had carted away old tires heretofore as a favor, are now bidding for them. Some are said to have made small fortunes on the old rubber. Recently in Burbank, California, the city garbage contractor had two Los Angeles junkmen arrested for gathering up thirteen old tires in the alleys.

J. W. Shade, director of laboratories of The B. F. Goodrich Co., Akron, Ohio, attended the annual session of the American Chemical Society at Los Angeles last month, and was the guest of F. L. Hockensmith, Goodrich district manager.

H. L. McLaren, president of the McLaren Rubber Co., Charlotteville, North Carolina, has been studying trade conditions on the Coast. McLaren tires have considerable sale in this section.

J. B. Brady, of San Francisco, manager of Pacific Coast branches of the United States Rubber Co., has just recovered from a severe affection of the throat which had confined him to his home two weeks.

Wesley D. Smith, for a long time Los Angeles branch manager of the Keaton Tire & Rubber Co., San Francisco, California, has become general manager of the Motor Rim and Wheel Service, which operates in the cities named.

That high prices for tires are here to stay for many months to come is the opinion of George Pepperdine, president and general manager of the Western Auto Supply Co., the largest distributor of tires on the Coast, and who has just had a careful survey made of the tire and rubber situation here and abroad.

The Goodyear Tire & Rubber Company of California entertained the delegates to the recent annual convention in Los Angeles of the American Chemical Society. The company is steadily approaching capacity production in turning out an average of 6,300 casings and 8,000 tubes a day, besides producing a large amount of repair material. Vice-President and General Manager A. F. Osterloh recently made a business trip up the Coast and found conditions very encouraging.

A sales increase during June, 1925, of 120 per cent as compared with June, 1924, is reported by the Uhl Rubber Co., Visalia, California, a distributor of tires manufactured by The India Tire & Rubber Co., Akron, Ohio.

Executives of The Goodyear Tire & Rubber Co., Inc., Akron, Ohio, state that G. Percy Shaw is in charge of golf ball sales throughout the California territory.

R. A. Kincaid, manufacturers' agent, is now maintaining offices at 401 Jacobson Building, corner of 16th and Arapahoe streets, Denver, Colorado. Mr. Kincaid is handling goods manufactured by the Goodrich, Marathon, Van Woud, and Lobi rubber companies.

#### New Mexico to Have Experimental Field Station

Cooperating with the New Mexico State College of Agriculture, the Bureau of Plant Industry of the United States Department of Agriculture has completed arrangements for the establishing of a field station at Las Cruces, New Mexico, where facilities for the experimental planting of rubber and cotton will be provided. No actual plantings of rubber have yet been made, but the land has been leveled and prepared for the growing of guayule and other rubber-producing species adapted to the arid conditions of the Southwest.

#### The Rubber Trade in Canada

Tires and tubes have again been raised to higher price levels, this being the fourth increase in the past few months. The latest increase approximates 15 per cent, however, quantities of seconds and cut-price tires are on the market, so that the effect will not be immediately felt, as many of the dealers have considerable stocks on hand bought at lower prices than are now ruling. This increase has come in face of declining prices in crude rubber. In sympathy with higher quotations in other rubber products certain types of garden hose have increased 15 per cent. Discounts have also been altered on rubber packing, and net prices are now approximately 10 per cent higher. It is not anticipated, however, that further advances will be made in mechanical rubber goods. The latest revision in rubber belting is an advance of 15 per cent. Prices on fruit jar rings have advanced approximately 25 per cent.

The 1925 revised edition of the *Dunlop Trail*, compiled by A. A. Briggs for the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, is now available for the Canadian car owners and while the book is of the same size as last year it is practically new cover to cover. Many new and revised maps are included. The popularity of the 1924 edition is evinced by the numerous clippings on file in the Dunlop offices, requests coming from even South America and from all over the continent.

The Goodyear Tire & Rubber Company of Canada, Ltd., Toronto, is taking care of the higher cost of rubber through its costing system. This differs from the plan of the parent company at Akron, Ohio, which has created \$3,000,000 special raw material reserve. Though rubber has been above \$1 a pound for some time, Goodyear of Canada has been using rubber that costs about half this, due to the foresight of the management in securing heavy purchases. Goodyear will not use as costly as 55 cent rubber in its product this year.

A large number of Canadian firms are exhibiting at the British Empire Fair at Wembley Park, London, England. The rubber industry is represented by the following companies: The Kaufman Rubber Co., Ltd., Kitchener, Ontario; K. & S. Tire & Rubber Goods Ltd., Toronto, Ontario; Gutta Percha & Rubber Ltd., Toronto; Goodyear Tire & Rubber Company of Canada, Ltd., Toronto; Miner Rubber Co., Ltd., Montreal.

The "Show Window of a Nation" is the title of Canada's National Fair held annually at Toronto, Ontario. The leading rubber manufacturers will be represented with displays covering production in tires, mechanicals, rubber footwear, etc., both in the transportation and process buildings all of which exhibits have in the past attracted much interest.

During the first half of 1925, according to the Department of Commerce, Canada's exports of rubber boots and shoes showed a great increase over the corresponding period of 1924. The advance in exports of canvas rubber-soled shoes was not as striking. The combined shipments for the six months of rubber boots and shoes reached 367,238 pairs, value \$620,640, the figures for canvas

rubber-soled shoes being 1,278,319 pairs, value \$882,880. The leading customers for these goods were the United Kingdom, New Zealand, British South Africa, Mexico, Newfoundland and Labrador, and Argentina.

George St. Germain, St. Johns, Quebec, jobber for the Columbus Rubber Company, Montreal, Ltd. at the recent St. Jean Baptiste Parade held in Montreal, showed a large size 36 rubber boot on top of a float which was made by the Columbus Rubber Co., for a Quebec City man known as the "Quebec Giant."

Pearson's Non-Collapsible Tire Co., Ltd., capitalization \$125,000, with head office at Montreal, is a recent company to be granted a Provincial charter.

The Goodyear Tire & Rubber Company of Canada, Ltd., Toronto, reports heavy sales of Goodyear toy balloons, the demand for which they state is growing rapidly. In two days more than one hundred dealers ordered Goodyear advertising balloons.

The twenty-first annual picnic of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, was held recently at Port Dalhousie when more than 900 employees attended. This makes the twenty-first consecutive annual picnic of the Dunlop Company, and the most successful in its history.

The open championship of Ontario was won recently at Summit Golf Club, by Nicol Thompson, professional of the Hamilton Golf Country Club, playing Dunlop Maxfli golf balls. Mrs. G. C. Ferrie, of Hamilton, won the Ontario ladies championship playing the Maxfli ball.

The Flexo Supply Co., 104-106 South Main street, St. Louis, Missouri, manufacturer of Flexo Kant Leak pipe joints, has made arrangements to cover Canadian territory for the Riley Engineering & Supply Co. The latter organization maintains offices in Canada at 360 Dufferin street, Toronto, and 3 St. Nicholas street, Montreal.

The Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pennsylvania, has announced the appointment of A. G. Hill as its agent for the Eastern Canadian district. Mr. Hill is making his headquarters at 45 Jarvis street, Toronto, Canada.

#### NATIONAL SAFETY COUNCIL MEETING

The Fourteenth Annual Safety Congress of the National Safety Council will meet in Cleveland, Ohio, September 28 to October 2, 1925. It is planned to make this Congress the greatest safety gathering ever held. The attendance promises to be greater than ever before in the history of the National Safety Council and the exhibit of safety devices will be larger than in previous years. The program lists 250 speakers and 70 sections.

Of special interest to rubber men are the programs of the chemical and rubber sections which will hold one meeting jointly. At the first session of the rubber section there will be a discussion on "Old and New Safety Kinks" led by R. C. Salisbury, manager, safety and health department, The Fisk Rubber Co., Cudahy, Wisconsin; E. W. Beck, chairman, Central Safety Committee, United States Rubber Co., New York, N. Y.; H. T. Martin, health and safety department, The Fisk Rubber Co., Chicopee Falls, Massachusetts.

At the second session, handling solvents will be discussed by speakers not announced. Also a paper on "Power Windups" by William H. Larkin, Jr., Power Engineer, Mechanical Goods Factories, United States Rubber Co., Passaic, New Jersey. Discussion will follow this paper.

#### PALESTINE'S FIRST TIRE AND TUBE FACTORY

The first factory in Palestine to produce tires and tubes has been established at Nazareth under the name of Mickael Farah & Co. The new organization is now purchasing machinery and all supplies needed by a modern tire manufacturing plant.

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## The Rubber Trade in Europe

### Great Britain

THERE has been much discussion and some uneasiness in certain quarters as to the government concessions regarding rubber output, the latest announcement being that the maximum standard for production would be increased from 400 to 500 pounds an acre. Later advices were that only about 30 estates would be affected by such a decision, while possibly 80 others would be able to produce up to 450 pounds an acre. Under the circumstances little change can be expected in a situation, regarding which the *Financial Times* makes the following comments:

The number of those very few estates which had in 1919-20 a crop which could be proved to average over 400 pounds to the acre is so inconsiderable that the total increase to the crop may be considered negligible. This alteration simply means a reversion to the original scheme, which was based on an export allowance of 60 per cent of the actual provable crop produced by estates during 1919-20 worked from November 1, 1919, to October 31, 1920; the working of the scheme was later on tightened up by fixing a maximum of 400 pounds per acre. There has been no fundamental alteration in the scheme, which is shown by the fact that we have an automatic increase of 10 per cent for this quarter, making the export allowance 75 per cent.

As is so frequently the case, this small present to the admittedly deserving has been misinterpreted by the uninformed, many of whom seriously thought that all estates had an increased standard allowance to 500 pounds per acre, which on a fair average would have given about 50 per cent additional export allowance, and in some cases up to 100 per cent extra allowance. This mistaken idea has to some extent been responsible for the recent sharp decline. Shipments from the Straits and Malaya for July are cabled as 24,809 tons, against 27,894 tons in June, of which 3,082 tons were shipped to the United Kingdom and 18,033 tons to the U. S. A. In view of this decline in shipments it is clear that we have to wait some time for any material relief of the present position of shortage on the spot, and we must be prepared for considerable premiums on spot and near rubber for some months to come.

### Manifesto by India Rubber Manufacturers' Association

The manifesto issued July 17 by the India Rubber Manufacturers' Association has attracted much attention, particularly as the association includes 95 per cent of the British rubber manufacturing industry, a body of men whose opinions cannot be overlooked. The introduction to this document states that the organization desires to protest most strongly against the continuance in operation of the Stevenson scheme in its present form for the restriction of exports of crude rubber from Malaya and Ceylon. The manifesto then proceeds:

It is our considered opinion that in the public interest this legislation should be repealed, or alternatively, should be drastically modified for the following reasons:

1. The scheme was promulgated by a committee consisting—so far as the unofficial representatives were concerned—of members interested in securing the highest possible price for crude rubber.

2. The present drastic restriction of rubber exports from Malaya and Ceylon is responsible for the sale of rubber at 4s 6d per pound, against an average all-in cost of production of approximately 8½d, the average selling price during the whole of 1924 being in the neighborhood of 1s. 2d. It is our duty to point out in this connection that: (a) The prices of rubber goods must necessarily be increased to a level which will bear hardly upon the consumer. (b) In the case of those manufacturers who are forced to buy on the "spot" market, the position may necessitate the shutting down of their plants, with resultant unemployment. (3) There has been a distinct breach of faith in regard to the operation of the scheme.

In corroboration of this breach of faith, three examples are

cited, one being the speech made on July 18, 1924, by Winston Churchill, M.P. and Colonial Secretary, the occasion being a dinner of the Incorporated Society of Planters. Mr. Churchill then stated: "It was not with any idea of raising the price to a monopoly pitch, or with any idea of restricting the permanent growth of rubber production throughout the world that they embarked upon the Stevenson scheme. They wanted stability, while the figure they had in mind, at which there was a fair profit to the producer, was 1s 3d per pound."

The following extract from a letter dated November 13, 1922, from the Rubber Growers' Association to the Rubber Association of America might be quoted as showing that that organization held a similar view: "The pivot figure and therefore the one on which the scheme may be supposed to rest is 1s 3d per pound, with possible fluctuations in its neighborhood."

A deputation from the association in interviewing Sir James Stevenson at the Colonial Office on October 9, 1922, put the following question:—In the event of legislative restriction on the exports of rubber being imposed, and the price of rubber soaring in consequence of rubber being in short supply, would steps be taken to unload stocks to ease the situation and to bring down the price to reasonable limits? To this Lord Stevenson gave an emphatic and affirmative reply, stating that the object of the scheme he had formulated was a stable price, which would be fair alike to the manufacturer and to the producer. The manifesto continues:

We state deliberately, and with full knowledge of the position, that given the present rate of consumption and calculating on only 10 per cent releases under the scheme, that the world's stock of rubber will be totally inadequate. We are rapidly approaching a position of dangerous shortage.

The world's requirements at the present rate of consumption are over 40,000 tons per month. The normal stocks required are, according to the Stevenson report, "an equivalent of eight months consumption," whereas the present stocks represent half this amount. A 10 per cent release would be equal to two days extra supply. Under the present scheme, with the maximum release of 10 per cent becoming operative quarter by quarter throughout the year, there could be added only two days extra supply monthly, quarter by quarter. The government, on the facts, must surely realize that the original intention of the Legislature to maintain the price of rubber between the limits of 1s 3d and 1s 6d is impossible of achievement under the operation of the scheme.

We would desire to state that both in Ceylon and Malaya there has been expressed by representative bodies of planters a desire to modify the scheme so as to carry out the express intention of the Legislature. The desire of the manufacturers also is, that the Stevenson scheme should be abolished or drastically amended as to provide quick releases, as and when the price of rubber goes beyond the limits aimed at by the scheme.

### More Protests Regarding Rubber Restriction

On July 30 a deputation from the India Rubber Manufacturers' Association met with the Parliamentary Industrial Group at the House of Commons. The deputation was introduced by Sir George Beharrell, of the Dunlop Co., Limited, who was accompanied by Colonel Seely Clark, past president of the Society of Motor Manufacturers, and Mr. Moseley, of the Moseley Tyre Co. The purpose of the visitors was to discuss the present situation in the rubber industry, and to suggest the necessity for revising the Stevenson scheme. It was stated that unless relief was secured many small manufacturing concerns would be forced to close down, and some thousands of working people would be out of employment. After some discussion the group decided to take an early opportunity for going over the matter with the Colonial Secretary.

On August 5 some fifteen British rubber manufacturing organizations, "not necessarily representing the views of the India

Rubber Manufacturers' Association, but as the opinion of an influential body of rubber manufacturing concerns," prepared a manifesto, copies of which were sent to the Prime Minister, the Secretary of State for the Colonies and to the President of the Board of Trade. In this document changes in the restriction measures were also urged.

#### Periodicals Comment Freely on Restriction Measure

Many newspapers and trade journals, both in this country and the United States, are giving much space to a consideration of the restriction measures, and comments both in favor of and in opposition to the Stevenson scheme are noted. In the August issue of the *Rubber Age* (London), the leading editorial, "The Anomalous Rubber Position," refers to the reply made by Mr. Amery, Secretary of State for the Colonies, to Sir Ellis Hume Williams who had asked whether immediate steps were to be taken for the removal of the restriction measure.

Mr. Amery writes that the answer is in the negative. This decision is apparently made in spite of the world-wide protest by the India Rubber Manufacturers' Association, supported by the Institution of the Rubber Industry and British and American consumers, that although the scheme has been successful in the main object aimed at, it has, by the swing of the pendulum, produced a fictitious position which is equally detrimental to producers, consumers and users of rubber. Mr. Amery's only reason for *laissez faire* is that "a sudden interference would involve an injustice to those who have entered into contracts under the scheme." We ask if the same consideration was paid to existing contracts when the scheme was passed into law and consumers were compelled to pay advanced prices for their rubber.

It is never too late to mend, and, although a decision has been given on the present position, it behoves the authorities to take immediate action to provide that the anomalous position should be rectified as speedily as possible and provision made for the future, so that an increasing supply of raw material may be available at prices that will be remunerative to the producer, but which will not be too excessive to enable the manufacturer to develop new uses, or drive off the market uses of rubber only possible if it can be purchased at about 1s 6d a pound.

#### Institution of the Rubber Industry

A first list has been published by the Institution of the Rubber Industry of those whose applications for diplomas have been considered by the examinations board and approved by the council. The list of Fellows and Associates in Science and General Rubber Technology includes the names of men well known in the rubber industry.

An extraordinary general meeting of the Institution was held on August 11 at the Engineers' Club, London, in order to pass on the new articles of association. A confirmatory meeting was held on August 26.

On July 29 at a meeting of the council of the Institution a resolution was passed stating that in the opinion of the council violent fluctuations in the price of rubber are detrimental both to producers and consumers, and that the reasons for the present situation should be ascertained with a view to avoiding such fluctuations in the future.

#### British Company News

The Borneo Rubber Estates, capitalized at £100,000, have been established for the purpose of acquiring estates for the cultivation of rubber in Borneo and elsewhere.

The Baling Rubber Estates, with a capital of £110,000, will acquire rubber estates in the Malay Peninsula and elsewhere. The registered office is at 65, London-wall, E.C. 2.

The Chungloon (Kedah) Rubber Estate was registered on July 24 with a nominal capital of £45,000. The new company will acquire estates in the State of Kedah or in Malaya or the Straits Settlements.

On August 5 there was a general increase of 15 per cent in the prices of all makes of British tires, 20 per cent for pneumatic tubes, and 20 per cent for solids. No changes were made in the prices of motorcycle tires. Statistics regarding British tire exports

during the first half of 1925 show great increases as compared with shipments in the corresponding period of 1924.

#### Germany

Business in the rubber industry in lower Saxony may be considered fairly satisfactory in spite of several adverse circumstances. Although both cotton and crude rubber prices have risen considerably of late, no particular difficulty was experienced in obtaining adequate supplies. However, though costs are high, the shortage of money in the country necessitates selling at low prices, often at prices that barely cover the costs. In certain lines in the export trade conditions are still worse owing chiefly to competition of countries like France, Belgium and Italy, where exchange is low. Owing to the burden of taxation, competition was difficult even in territories where English and Americans were the chief rivals. The surgical hard and soft rubber industry of Kassel, particularly, had a hard time of it, as foreign manufacturers quoted prices which in part at least were considerably below those of the German firms. It, therefore, became necessary, in order to keep up old connections, to work on a very slender margin of profit while, in addition, long credits had to be granted too.

#### High Prices and Old Rubber

The trade in old and reclaimed rubber, after passing through a long period of stagnation, is giving signs of a revival, though it must be admitted that in view of the prevailing high prices for crude rubber, reclaimers and dealers in scrap are more or less disappointed at the limited amount of business they are able to do. They complain that no matter how cheaply they offer their best grades, rubber manufacturers continue to neglect their goods to a greater extent than present conditions seem to warrant.

However, as is illustrated by the report of the well-known firm of reclaimers, Runge Werke A.-G., Spandau, the continued high prices of the crude article have not been without influence on the demand for reclaim. In fact, the firm in question states that while 1924 was an unsatisfactory year which yielded barely any profit, the business done during the first five months of 1925 almost equaled that for the entire preceding year, so that the outlook for the current year is considered to be very encouraging.

Another factor that ought to make prospects for reclaimers and scrap dealers brighter is that at least the railways have decided to cut the freight rates for scrap. Hitherto the rates were such that it hardly paid to move old rubber, especially the lower grades.

#### The Synthetic Rubber Concern

The *Gummi-Zeitung* publishes further details regarding the concern that has recently been established to manufacture synthetic rubber, mention of which was made in the August number of *The India Rubber World*.

It seems that the isoprene used in making this rubber is obtained from potatoes and by-products thereof. The method of working the isoprene does not consist of merely thickening it by heating, but is a chemical process whereby, through additions of various chemicals, a solid mass is separated after a few days. The product thus obtained, said to be very similar to crude rubber, is then subjected to special treatment, covering a period of weeks, after which it has the qualities of the finest crêpe.

The price of the article is considerably lower than the prevailing price of natural rubber; however, even if present rates should drop, the synthetic rubber could still be sold at some 20 per cent below world market quotations. It is claimed that the firm now produces 1,000 kilos daily, but in six months time this can be increased fifty-fold. It seems that some leading rubber manufacturers are experimenting with this material.

### Regaining German Foreign Trade

Germany's efforts to regain her former foothold in foreign markets have been hampered by a variety of circumstances and it now becomes urgent to mend matters and that quickly. To this end direct contact with Germans residing abroad is deemed necessary as they can give valuable information regarding the countries they live in. The Bond of Germans Abroad, Berlin, has therefore established its own traveling bureau which will organize trips for industrial groups and trade associations so that they may get in direct touch with their countrymen in foreign parts and obtain from them the cooperation they desire. It is planned to begin with the Balkan States and Near East.

### Latest Price Increases

The manufacturers of surgical soft and hard rubber goods have followed the lead of those making technical goods and tires and have raised their prices. These are now 25 to 50 per cent higher and cover the following:

Article	Percentage of Increase
Pure rubber seamless goods.....	50
Patent rubber goods, pure rubber.....	50
Seamless and patent rubber goods, normal quality.....	40
Mineralized .....	33 1/3
Hard rubber .....	33 1/3
Catheters .....	33 1/3
Bathing caps .....	25
Articles of rubberized material.....	25

### German Notes

A Polish Government decree, effective July 17, 1925, it is learned, bans the importation of rubber goods, rubber products and rubber from Germany. However, certain qualities may be allowed to enter Poland on condition that Polish goods are admitted into Germany.

Efforts are being made to cultivate a taste for chewing gum here as the population of Germany makes it an attractive field. The firm Läufer Gummiwarenfabrik Schwerdt & Renner, Hanover, has now put on the market a chewing gum under the trade name Läufer, which may be had in five flavors: peppermint, fruit, anise, marzipan and punch.

From time to time the old fault of mystery mongering is thrown up to German rubber manufacturers by their countrymen. This has recently come up for discussion again and comparisons are made between the difficulties put in the way of visitors to German factories and the courtesy and helpfulness shown by American firms, who are held up as examples for Germans to follow.

Exports of rubber goods increased from 10,557 quintals, value 6,171,000 marks, in April 1925, to 16,233 quintals, value 9,218,000 marks in May, 1925. Imports also rose from 1,691 quintals, value 1,065,000 marks, to 1,778 quintals, value 1,092,000 marks.

### France

While there is practically no demand for rubber boots in Alsace-Lorraine, there is a fairly large market for rubbers. The Société Industrielle des Téléphones, Paris, supplies most of the footwear of French make. The North British Rubber Co. obtains a fair share of the local trade and when prices are satisfactory, American footwear is in good demand, about 10,000 to 15,000 pairs of American rubbers being sold here in an ordinary good season. Crêpe rubber soles are as yet little known.

Etablissements Hutchinsons, Compagnie Nationale du Caoutchouc, reports net profits of 13,763,269.87 francs for the business year ended February 28, 1925. A dividend of 70 francs per share has been declared.

The Compagnie Générale des Câbles de Lyon is to be merged with the Compagnie Générale d'Électricité. The shareholders of the former company are each to receive one share of the latter company in exchange for two shares of their own in addition to a cash sum of 100 francs for two shares of the Compagnie Générale des Câbles de Lyon. The dissolution of the firm has

been decided upon and Emile Bitterli and Edouard Kaueffer have been appointed liquidators. For 1924 the Lyon firm reported net profits of 1,426,359 francs.

### The Netherlands

According to available statistics, total imports of rubber footwear into the Netherlands amounted to 339,000 kilos, value 816,000 guilders in 1922. Of this quantity 151,000 kilos, value \$389,000, came from Germany. It seems that since 1922, imports of these goods have increased considerably. The usual type of rubber shoe retails around 1.16 guilders per pair. Rubber-soled tennis shoes are much used and sell at various prices up to 8.50 guilders per pair. Although it has been thought that American shoes were too expensive their superior quality is being recognized and there appears to be a good opportunity for expansion of sales here.

Rubber floor coverings have received due attention, the department making special propaganda at the Spring Trade Fair at Utrecht with the cooperation of the N. V. Nofa Eboniet-en Rubberfabrieken, Amsterdam, and Rubberfabriek, Vredesstein, Loosduinen. Foreign manufacturers were represented by The Stedman Products Co. and the Leyland & Birmingham Rubber Co. It should be noted that much interest was displayed in the rubber mats of the Duro Rubber Products, Limited, London, shown at the above fair. Since these mats also attracted much attention at the Trade Fairs in Leipzig, Vienna and Prague, it is thought that they may find a ready market.

Preliminary results of experiments in using cellular (expanded) rubber to prevent the sick from developing bed-sores were so successful that samples were supplied to certain large hospitals with the request to try them out and to report on the outcome. Expanded rubber has this advantage over the usual sponge rubber that it can be completely disinfected, an accomplishment which is practically impossible with sponge rubber.

The application of latex is being carefully studied. A Dutch inventor uses latex to cover printing blocks with an anti-corrosive film. The latex not only penetrates into the smallest cavities in the block thus affording complete protection, but can easily be stripped off when occasion so requires.

### Denmark

Available statistics show that Danish imports of rubber footwear came to 171,100 kilos in 1923 and 120,400 kilos in 1922; the figures for rubber boots were 34,700 kilos in 1923 against 15,900 kilos in 1922. Denmark has just one factory making footwear and it began activities only recently.

Swedish and German goods find a ready sale here, but in spite of this competition American rubber footwear enjoys a good deal of popularity, owing to its high quality and the comparatively reasonable prices.

### Latvia

It is learned that the Kontinent rubber company, Riga, up to the present the most important rubber factory in Latvia, closed the business year 1924 with gross profits amounting to 595,610 Lat, and net profits of 162,902 Lat. A dividend of 12 per cent is to be turned out. The second largest Latvian rubber concern, Quadrat, recently began operations. It is understood that there are expansion plans under consideration which if carried out will put this firm at the head of the Latvian rubber factories. The products of these two firms and of some smaller ones are to only a slight degree sold in Latvia, the greater part being exported to Poland, Lithuania and Estonia; a certain portion even goes to Switzerland and overseas.

AMONG RUSSIA'S IMPORTS OF FOREIGN GOODS DURING THE period from October, 1924, to March, 1925, were received, according to *Commerce Reports*, 1,765 metric tons of crude rubber, value 2,512,000 rubles. One ruble has a value of \$0.5146.

## The Rubber Trade in the Far East

### Malaya

At the Planters' Conference held at Kuala Lumpur on June 21, A. W. Still of the *Straits Times* read an interesting paper on the rubber industry. The place rubber takes on the list of Empire exports is illustrated by comparing a year's earnings from rubber grown in British territory, put at £60,367,000, with total exports from a group of seven principal Crown Colonies and Protectorates, aggregating £64,000,000.

The influence of the development of Malaya on the industries of the United Kingdom is shown by the increase in total trade of this colony, import and export, from \$584,962,000 in 1905 to \$1,376,410,136 in 1924, was accompanied by an increase in imports from United Kingdom from \$35,600,000 in 1905 to \$88,947,760 in 1924.

Keeping imperial interests in view, Mr. Still proceeds to work out the world's future requirements of rubber, using as the basis of his calculations Rickinson's figures of production and taking three periods of four years each, the first ended 1916, the second 1920, the third 1924, thus:

In the first period the aggregate production, all grades of rubber, was 589,120 tons, a yearly average of 147,280 tons; second period—1,232,868 tons, or an average of 308,217 tons per annum and an increase of 160,937 tons per annum as compared with the first period; third period—despite restriction, voluntary and compulsory, production was 1,508,075 tons, averaging 377,019 tons annually, an increase of 68,802 tons per annum over the second period and 229,739 tons per annum over the first period.

Assuming that during two future periods of four years each the average annual increase will remain at 68,802 tons and taking the 1924 consumption at 418,000 tons, the world's demand in 1928 is put at 693,208 tons and in 1932 at 968,416 tons.

To meet the requirements of 1928, namely, 693,208 tons, Malaya can supply 313,744 tons, Ceylon 70,000 tons; while other rubber and wild Para will contribute 30,000 tons each, in all 443,774 tons, leaving for the Dutch Colonies 249,434 tons. From the latter source 158,000 tons were obtained in 1924, so that an increase of over 90,000 tons is needed here to make up the estimated world demand.

A shortage, therefore, may not come before 1928, but unless an extensive planting program is instituted, it will come before 1932, for the world's full capacity production from existing sources of supply cannot be more than 700,000 tons.

It is calculated that in 1929 the shortage will be 62,010 tons, in 1930, 130,812 tons, in 1931, 199,614 tons and in 1932, 268,416 tons!

To supply this shortage no fewer than 3,000,000 acres will have to be planted between the present date and the beginning of 1932 as not more than 200 pounds per acre can be expected from such new plantings.

British planters are urged to do their share to prevent this threatened shortage; serious scarcity would give a tremendous impetus to work on synthetic rubber and even a moderate success in this direction would gravely prejudice the interests of all rubber growers. However, the cost of planting and bringing to maturity 3,000,000 acres at £40 per acre would be £120,000,000 and it is doubtful whether British investors would now care to lock up this amount for five or six years without remuneration during that period.

Nevertheless it is the duty of the British to prevent a shortage in proportion to their interest in the industry, and this is 50 per cent of the whole. To further this undertaking of planting 1,500,000 acres, Mr. Still proposes that a sum of £60,000,000 be raised as required over a period of four years, and that interest on this sum, at the rate of 5 per cent per annum, be guaranteed and paid by the Imperial Government. Subsequently, when the bearing stage

would be reached, the government would receive a royalty of say 3d per pound from planters for the right to tap the new areas. In 20 years, the gain to the government, it is calculated, would be £30,000,000. As for the planters, after the sixth year they would be getting a profit of 8d per pound, assuming the price of rubber averaged 1s 6d per pound and all-in costs were 7d per pound plus 3d per pound royalty to the government.

### Rubber Exports

Total Malayan exports of rubber from all ports during June, 1925, amounted to 27,894.18 tons, against 18,083.70 tons in June, 1924. The total exports for the six months ended June, 1925, came to 144,616.76 tons as compared with 123,811.57 tons in the corresponding period of 1924. This is an increase of 20,805.19 tons.

At the same time imports of rubber from countries outside British Malaya were 14,706.36 tons in June, 1925, against 7,434.58 tons in June, 1924. The June, 1925, imports consisted of 1,996.40 tons dry smoked sheet, 780.88 tons dry crêpe, 9,892.38 tons wet unsmoked sheet, 796.34 tons wet scrap and 1,240.36 tons wet lump.

For the period January to June, 1925, imports were 73,036.80 tons against 47,179.41 tons in the same period of 1924. It will be noted that imports of native rubber continue to increase, though perhaps not at their previous rate.

### Maximum Crops Harvested

From time to time attention has been called to statements to the effect that many of the larger European firms were producing to capacity and storing their surplus rubber against the time when restriction should be removed. In the annual report of the Semenyih Rubber Estate, Limited, this policy is frankly announced, a director of the company declaring that the practice of harvesting maximum crops had become general in the East in the last few months and that the company which restricts output voluntarily now will get no thanks and will find that it does not pay. There is of course nothing to prevent an estate harvesting all it can as the Stevenson Scheme applies to exports and not to crops.

### South India

From the annual report for 1924-25 of the rubber specialist, H. T. Ashplant, we learn that spraying the foliage of Hevea trees with Bordeaux mixture to prevent secondary leaf fall has proved to be successful. Most estates are now carrying on more or less extensive spraying operations. All trees sprayed last year showed much better heads of foliage than previously.

To avert some of the loss of crop through rains, experiments were carried out with various protective devices. After many attempts, the rubber specialist devised a cheap and simple means of drip-prevention. It seems that by using this device from 10-15 pounds additional crop may be obtained per acre during the four monsoon months.

Despite numerous local difficulties it was demonstrated that the budding of Hevea is a practical estate operation in South India. Two Mundakayain estates have taken up the work in earnest and despite early disappointments, thanks to practice and perseverance, now report satisfactory results.

In South India, too, experiments in distilling oil from rubber have been made. It seems that 20 pounds of rubber, by dry distillation, yielded about  $\frac{3}{4}$  of a gallon of a light oil suitable for driving motors, besides a similar quantity of a heavier brown oil. As the total value of the oils obtained from one pound of rubber work out at less than  $1\frac{1}{2}$ d., there is obviously little to be hoped for from rubber oil.

### Netherlands East Indies

The news that an American delegation is planning to approach the Netherlands East Indies Government on the subject of investing American capital in rubber lands here, has been received with much interest. Discussing the subject the *Deli Courant* expresses a doubt as to whether Americans, when they carefully consider that they would have to wait seven to eight years for reasonable returns on their investment and that circumstances will have changed considerably in the meantime, will undertake any really extensive planting. They prefer to let others plant and run risks.

On the other hand restriction is distasteful to them as being responsible for prevailing high prices, and influenced by this it is natural that they should wish to make attractive offers to European and native planters here for firm deliveries of rubber for the future. In the opinion of the above paper, Americans may bid for the entire Dutch output, European as well as native, for a period of five or ten years, at very remunerative prices.

But local planters must not be misled by tempting American offers. Americans are naturally out for their own interests, and for the time being they are incensed at the British and wish to keep the Dutch on their side in order to use them and play them off against the British. This would be profitable to the Dutch until the Americans had succeeded in bringing the British to terms, when they would turn around and use the British against the Dutch.

What Dutch growers should not forget is that the interests of producers are on one side and those of consumers on the other. But both parties have certain important interests in common and in this connection violently fluctuating prices are undesirable. For the good of manufacturers and planters, a profit-yielding but low and constant price is of the greatest importance.

### European versus Native Plantings

Dr. O. de Vries discussed the question as to what Europeans could do to successfully cope with native competition, at a recent meeting of the Centraal Rubberstation, Weltevreden.

The native plantations have practically doubled during the past few years, whereas the European plantings increased by only a few per cent. The difficulties which it was supposed native cultivation would experience now appear to have been exaggerated—diseases play no important part, bark renewal is good, the quality of the rubber is above expectations and after being remilled into amber blanket fetches but little less than the European product.

On the other hand, Europeans have the disadvantage of overhead charges of which the natives know practically nothing. However, European estates are run scientifically and yield more so that tapping costs are lower.

European concerns can meet competition in two ways with regard to methods for cheap preparation: they can strive for cheap mass production or specialize in certain types of rubber. Only Europeans can supply latex for export. Sole crêpe is another type that Europeans must make. In Java, tests on a commercial scale are being made with so-called certified rubber—rubber prepared by estates aiming at a uniform product of good quality which after being sampled and approved is awarded a certificate for inner qualities. Besides this there is a white, evenly finished crêpe for which certain estates are already regularly obtaining a premium, and finally there is extra clean rubber which some factories require for solutions.

### Rubber Oil

Ir. W. Spoon, in the *Archief voor de Rubberveld*, of June, discusses the possibilities of rubber oil distilled from the lower grades like scraps and earth rubber.

While it has long been known that dry distillation of rubber yields an oily liquid, it was not until the recent slump period that experiments in converting low grade rubber into oil were care-

fully taken up in Ceylon, Malaya and in Java. This oil could be used for certain special purposes besides as a substitute for turpentine and gasoline. However, present prices make it impossible to exploit rubber oil for the time being. But periods of depression must always be expected and at such a time it might be good to know of a profitable way of using low grade rubber.

### Rubber Factory in Djambi

In answer to certain questions on the subject, the local government replied that it was in sympathy with efforts to establish a factory in Djambi for the purpose of remilling native rubber and was ready to remove possible difficulties. It is learned that Chinese in Djambi would not be interested in such an enterprise as long as the remilled product was subject to export duty. Therefore it is pointed out that since the government had declared itself in favor of a factory, it could give considerable support to the establishing of one or more such works by exempting remilled rubber from export duty. In this way, too, a portion of the flourishing rubber-remilling industry of Singapore would be transferred to Dutch territory.

### Planting News

After a long illness, H. Ketner, sometime manager of the Holland-American Plantation Co., died on July 13, 1925, at Baarn, Holland. The deceased was connected with the above firm since 1911. Probably his most important achievement was the planting up of 37,525 acres in only four years' time.

The rubber factory at Bandoeng has been sold to the well-known Chinese rubber man, Tan Kah Kee of Singapore, for the sum of 80,000 guilders.

Asahan, East Coast of Sumatra, is developing rapidly. Although the rubber industry there is of comparatively recent date, production during 1924 was 17,000 tons out of a total of 50,000 tons exported by East Coast Sumatra at the time. A further substantial increase is expected shortly, especially as the Holland-American Plantation Co. alone estimates an output for 1925 of more than 17,000 tons.

### Ceylon

Exports of rubber from Ceylon during the period November, 1924—June, 1925, came to 26,820 tons, the quantity covered by the issue of certificates being 24,404 tons for that period. Shipments during June were more than normal, amounting to 4,227 tons. The extra heavy shipments were caused partly by the desire to escape the higher freight for rubber which came into force on July 1, 1925.

The higher exportable allowance for the quarter beginning August 1 will raise the permissible monthly export from 3,565 tons to 4,113 tons.

### Borneo

Last year, the Sarawak Rubber Estates produced about 1,000,000 pounds at an estate cost of 5½d per pound. The company, which is capitalized at £120,000, has 2,526 acres of mature rubber.

The Lawas (Sarawak) Rubber Estates was floated two years ago and now has 1,030 acres in bearing, while its capital is £40,000. It is now efficiently managed and the crop for the current business year is estimated at 400,000 pounds at an all-in cost of 8d. per pound. Five tons per month have been sold forward over 1925 at 1s 5½d per pound, London.

Dahan Rubber Estates, a subsidiary of the Sarawak Company, has 1,159 acres of mature land on a capital of £50,000. This area too had been badly neglected for some two and a half years and was only reopened in March, 1924. The crop for the year ending October 31, 1925, will be in the neighborhood of 300,000 pounds, at around 9d per pound, all-in. Nearly half of the crop has been sold forward at a little over 1s 6½d London.

## Rubber Patents, Trade Marks and Designs

### The United States

July 14, 1925\*

1,545,568 Tire filler. George D. Neiman, Boulder, Colorado.  
 1,545,790 Tire. Max Cyrus Overman, assignor to O. & W. Co., both of New York, N. Y.  
 1,545,844 Tire. Charles Neimeyer, Little Rock, Arkansas, and William A. Brubaker, Akron, Ohio.  
 1,545,966 Shoe heel with rubber body. William L. Lawrence, Brooklyn, New York.  
 1,545,987 Protective tire tread. Julian Strzczkowski, New York, N. Y.  
 1,546,041 Rubber shoe last. Henry H. Stone, Ashland, Massachusetts.  
 1,546,043 Resilient inner lining for pneumatic tires. McGarvey E. Tate, Somerset, Kentucky.  
 1,546,163 Bathing cap. Louis and Marie Auster, both of New York, N. Y.  
 1,546,206 Rim. Frank E. Conner, assignor of one-half to James Wesley Watkins, both of Quenemo, Kansas.  
 1,546,244 Interior bathband with tubular inflatable member. Camille H. Loiselle, Florence, Massachusetts.  
 1,546,277 Rain guard partly made of waterproof fabric for window. Willard Howard Woods, Dyersburg, Tennessee.

### Reissues

16,111 Bathing cap. Serial No. 24,669; original No. 1,482,723. Dated February 5, 1924; serial No. 660,797. Filed September 4, 1923. Louis and Marie Auster, both of New York, N. Y.

July 21, 1925

1,546,403 Burglar proof structure, partly composed of rubber, for vault walls, doors, etc. Frederick W. Raven, Chicago, Illinois.  
 1,546,483 Indoor baseball with core partly made of rubber. Arthur E. Fegan, assignor to George Young & Co., both of Chicago, Illinois.  
 1,546,497 Metal cover for pneumatic tires. Henry McGill, Canterbury, Victoria, Australia.  
 1,546,512 Life saving belt with rubber tube. Ralph Louis Schroeder, Owensboro, Kentucky.  
 1,546,524 Duplex tube pneumatic tire. Alfred Ward, Vallejo, California.  
 1,546,648 Handle for hard rubber battery boxes. Alfred A. Glidden and Joseph E. Perrault, assignors to Hood Rubber Co., all of Watertown, Massachusetts.  
 1,546,714 Tubular spraying nozzle. James W. Buzbee, Omaha, Nebraska.  
 1,546,838 Necktie holder with rubber band. Bernat Kemeny, New York, N. Y.  
 1,546,843 Tire rim tool. Charles J. Laundrie, San Jose, California.  
 1,546,940 Tubular injecting means for applying medicament. John R. Pennington, Chicago, Illinois.  
 1,546,942 Gasket with a body portion of rubber composition. Edward N. Roth, assignor to Roth Rubber Co., both of Chicago, Illinois.  
 1,547,022 Horn with hard rubber sound amplifier. George W. Bulley, assignor to The Miller Rubber Co., both of Akron, Ohio.  
 1,547,080 Finger ring rubber eraser. Julio B. Uranga, Los Angeles, California.  
 1,547,097 Swimmer's vest with inflatable pocket. James L. Curle, Helena, Montana.

July 23, 1925\*

1,547,166 Flexible knee pad. Homer K. Davidson, Princeton, Texas.  
 1,547,293 Pneumatic tire. James H. C. Boig, Dallas, Texas, and William Seward, Seaford, New York.  
 1,547,300 Tread for rubber boots and shoes. Walter H. Clark, Toronto, Ontario, Canada.  
 1,547,354 Sounding doll with flexible, hollow body. Hugo Baum, New York, N. Y.  
 1,547,568 Ice creeper shaped like rubber heel for shoes. Oscar W. Easton, Pigeon Cove, Massachusetts.  
 1,547,700 Rim for pneumatic tires. Frank H. Washko, Bedford, Ohio.  
 1,547,898 Rubber heel lift and insert. Lawrence E. Cassidy, Archer City, Texas.  
 1,548,009 Swimmer's appliance with air bag, casing, etc. John Useich, New Westminster, British Columbia, Canada.

August 4, 1925\*

1,548,045 Resilient vehicle tire. George Kiernan, assignor of one-third to William Allen Browne and one-third to Charles William Popp, all of Auckland, New Zealand.  
 1,548,048 Joint with rubber members. Hugh C. Lord, Erie, Pennsylvania.  
 1,548,049 Joint with rubber members. Hugh C. Lord, Erie, Pennsylvania.  
 1,548,050 Joint with rubber members. Hugh C. Lord, Erie, Pennsylvania.  
 1,548,276 Hot water bottle. Bernard Patrick Mulloy, New Albany, Indiana.

\*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Chemical patents will be found on page 722.

1,548,364 Cushioning connection for vehicle supporting springs. Henry Z. Cobb, Providence, Rhode Island, assignor to Revere Rubber Co., Chelsea, Massachusetts.  
 1,548,370 Tire. Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.  
 1,548,473 Garter. Francis T. Mallon, Newark, New Jersey.  
 1,548,502 Fountain pen. Ernst F. Attula, Los Angeles, California.

### Dominion of Canada

July 14, 1925

251,587 Abdominal belt. Charles W. Guthrie and William T. Shelby, co-inventors, both of Shelbyville, Kentucky, U. S. A.  
 251,593 Door closing device, with flexible cord. John Thomas Ball, Victoria, British Columbia, Canada.  
 251,625 Elastic kite balloon. Herbert Gray Gibbs, London, W. C. 2, England.  
 251,641 Folding stool with deflatable air cushion. Ralph Joseph, London, England.  
 251,650 Snubbing device with rubber strap. Royal S. Lewis, Yakima, Washington, U. S. A.  
 251,651 Snubbing device with open rubber snubbing loop. Royal S. Lewis, Yakima, Washington, U. S. A.

July 21, 1925

251,843 Water and fireproofed paper material treated with rubber. Millard Brandt, Tamaqua, Pennsylvania, U. S. A.  
 251,857 Demountable rim. Benjamin F. Gowday, Englewood, New Jersey, U. S. A.  
 252,005 Press with rubber pad. The Timken Roller Bearing Co., assignee of Ernest G. Strong, both of Canton, Ohio, U. S. A.  
 252,006 Shampoo bottle with rubber cap. The Van Ess Laboratories, Inc., assignee of Elmer Allen Gentry, both of Chicago, Illinois, U. S. A.  
 252,036 Tire carcass with body portion end bead cores. The Yoder Morris Co., assignee of Howard I. Morris, both of Cleveland, Ohio, U. S. A.

July 28, 1925

252,041 Swimming purse. Joseph Hetzer, Corona, and Erich Kohlhof, co-inventors, both in New York, N. Y., U. S. A.  
 252,045 Hand blower with flexible connecting strap. Charles E. Anderson, Junction City, Kansas, U. S. A.  
 252,066 Rubber seat pad or cushion for chairs. George S. Frazier, Sebring, Ohio, U. S. A.  
 252,101 Yielding strap for suspenders. Edward F. Moser, Warsaw, Indiana, U. S. A.  
 252,123 Apparatus for vacuum sealing jars, including the use of a rubber ring. Joseph Talansier, Paris, Seine, France.  
 252,125 Fixing device for rubber heels. Leopold van Roy, Brussels, Belgium.  
 252,151 Electro-magnetic sound reproducer including the use of layers of rubber rings. The Canadian Brandes, Limited, Toronto, Ontario, Canada, assignee of Cecil E. Brigham, East Orange, New Jersey, U. S. A.  
 252,224 Jar closure with rubber washer. George J. Picard, Borough of Carnegie, and Charles Gastgeb, assignee of one-half of the interest, both in Pennsylvania, U. S. A.  
 252,233 Horseshoe pad with cushioning material. George J. Heymoss, Jr., Detroit, Michigan, U. S. A.

August 4, 1925

252,283 Electric connection with soft rubber protecting sleeve. Walter A. Frantz, Cleveland, Ohio, U. S. A.  
 252,315 Sounding toy with hollow elastic body. The Katnips, Inc., assignee of Harold W. Munro, both of Providence, Rhode Island, U. S. A.  
 252,319 Fountain pen. George Howard Osterhout, Jr., Beaufort, South Carolina, U. S. A.  
 252,326 Device made of resilient insulating material, for protecting linemen. Moses Brown Salisbury, Chicago, Illinois, U. S. A.  
 252,333 Wheel rim. Benjamin F. Stauber, Spokane, Washington, U. S. A.  
 252,335 Puncture proofing device for inner tubes. Raffaello Stiattesi, Florence, Italy.  
 252,343 Shoe fastener with an elastic body portion. Koichi Uyeda, Stamford, Connecticut, U. S. A.  
 252,361 Compressible strip packing comprising a sheet of rubber covered material. The Beldam Asbestos Co., Limited, Hounslow, Middlesex, assignee of William Robert Beldam, Sutton, Surrey, both in England.  
 252,382 Connecting device comprising a body of flexible material. The Goodyear Tire & Rubber Co., assignee of Herman Theodore Kraft, both of Akron, Ohio, U. S. A.  
 252,386 Cushion connection for vehicles. The International Motor Co., assignee of August H. Leipert, both of New York, N. Y., U. S. A.

Machinery and Process Patents on Pages 726-727.

252,387 Cushion connection for vehicles. The International Motor Co., assignee of Alfred F. Masury and August H. Leipert, all of New York, N. Y., U. S. A.

### The United Kingdom

July 8, 1925

233,722 Shaving appliance comprising a mask lined with rubber sponge or sponge tissue. M. Derneden, 39 avenue Milcamps, Brussels, Belgium.

233,723 Valve for tires, footballs, etc., with a rubber block. P. E. An-glaide, 39 Rue Paradis, Marseilles, France.

233,771 Splash guard with a rubber cap, for wheels. G. Cooper, 9 Lin-coln street, Astley street, Salford, Manchester.

233,800 Detachable rubber heel. W. Martin, Town Head, Dearham, Mary-port, Cumberland.

233,805 Telephone receiver with central pole piece and casing of ebonite, hard rubber, etc. D. McLennan, 50 Erskine street, Alloa, Clackmannan.

233,815 Driving belts, with a layer of soft rubber, particularly for automobile fan belts. A. L. Freedlander, 2402 West Riverview avenue, Dayton, Ohio, U. S. A.

233,899 Wheel tires. S. Beaumont, 22 Harcourt street, London.

233,900 Wheel tires. A. Maclellan, 211 Piccadilly, London, and T. M. Down, 65 Gloucester Road, Kew Gardens, Surrey.

233,902 Wheel tires. P. S. Walton, 294 Slade Road, Erdington, Birmingham.

233,903 Rectal dilator of rubber. R. Baxter, 7 Brixton Hill, London.

233,912 Clamp for scaffold poles, the parts being lined with rubber. A. E. Farwell, 31 Derby street, Weymouth.

233,944 Electric resistances comprising a ring of ebonite, etc. F. S. Stuckey and Falk, Stadelmann & Co., 83 Farringdon Road, London.

233,973 Castor cups of rubber. H. W. Pickering, Cromer Road, Holt, Norfolk.

233,979 Shaving brush with rubber shield and ring. J. A. D. Watt, 142 Tulse Hill, Brixton, London.

233,980 Rectal appliance. F. A. Werner, Coventry House, South Place, Finsbury, London.

234,032 Rubber bush for the draw off pipes of casks, etc. J. Wright, 9 Wells Terrace, Finsbury Park, London.

July 15, 1925

234,108 Clock cases of hollow, solid or spongy rubber. P. A. Tourtier, 10 Rue du Regard, Paris, France.

234,174 Siphon bottle with head of material like vulcanite, also with rubber washer. H. S. Munckton, White Cottage, Erpingham Road, Bournemouth.

234,177 Mechanism containing vulcanized rubber, for regulating heat, humidity, etc. C. L. Burdick, 4 Eastern Road, Wood Green, London.

234,184 Mustard pot with rubber rings. H. E. Spencer, Gloucester Road, Kingston Hill, Surrey.

234,199 Lasting machine for boots, etc. E. Tweedale, 14 Beech street, and J. H. Nelson, 11a Grange, both in Rawtenstall, Lancashire.

234,246 Harness with elastic band for cyclist. F. C. Tipper, 1 Paradise Terrace, Holloway, Bath.

234,251 Horseshoes with rubber block. W. Heap, 8 Cambridge street, Cawley Lane, Heckmondwike, Yorkshire.

234,255 Arrows and other toys with rubber sponge cushion. H. A. New-bon, 4 Kensington Hall Gardens, London.

234,268 Positioning sound boxes for gramophones using rubber, etc., instead of springs. H. J. Kuchenmeister, 148 Kurfürsten-strasse, Berlin, Germany.

234,297 Rubber mat. P. H. W. Cloud, 1 Grantham Road, Bradford, and H. Alexander, 12 Broadway, Westminster.

234,303 Pontoon with layer of rubber jointing. S. E. Saunders, White House, Columbine Yard, East Cowes, Isle of Wight.

234,332 Head rest pad with sheet of flexible material and plate of sponge rubber. Ritter Dental Manufacturing Co., Inc., 404 West avenue, assignee of A. J. May, 64 York street, both in Rochester, New York, U. S. A.

234,336 Washing-dollies with rubber or other flexible disk. E. J. Entwistle, 13 Falcon street, Preston.

234,337 Tyre attachments to wheel rims. H. Sheils, 80 Strand Road, Londonderry.

234,339 Rubber animals and other toys, mechanical and floating. M. M. Dessau, 14 Mincing Lane, London.

234,345 Reservoir pens. G. H. Osterhout, 15 Cateret street, Beaufort, South Carolina, U. S. A.

234,362 Reservoir pens. L. Deri, 59 Gizella ut, and A. Balazs, 31 Vilmos Császár ut, both in Budapest, Hungary.

234,429 Sole with rubber tread for boots, etc. J. E. M. Cooke, 18 Market Square, Stafford.

234,430 Device using a flexible frame and elastic connecting pieces, for dressing the hair. Parker & Co. (London), Ltd., and K. C. Parker, 4 Bridgewater Square, London.

July 22, 1925

234,473 Wheel tires. M. F. Jacob, 1 Route de Paris, Amfreville-la-Mivioie, Seine, Inferieure, France.

234,477 Suspender with rubber strap for stockings. G. Erne, 53 Haup-strasse, Kreuzlingen, Switzerland.

234,483 Lasts partly composed of a layer of rubber, for boots, etc. J. Talalay, Tempelhofer Ufer, Berlin.

234,629 Foot rests with rubber tread, for motorcycles. F. A. Saxelby, London Road, Stretton-on-Dunsmore, Warwickshire, and J. Shelley, 7 Barr's Hill Terrace, Coventry.

234,632 Rubber foot arch support for boots. G. A. Cummings, 11 Warwick Crescent, Paddington, London.

234,634 Rubber photograph frames. A. M. James, 1 Claremont Crescent, Weston-super-Mare.

234,640 Hand-operated cleaners with strips of rubber, for cleaning windows, windshields, etc. E. H. and H. Hill, 56 Bromhall street, Sheffield.

234,651 Powder puff with rubber container. W. Maclanachan, 11 Paul-ton street, Chelsea, London.

234,676 Foot arch support with rubber block. L. E. Scrnage, 1020 Lincoln Building, Penn Square, Philadelphia, Pennsylvania, U. S. A.

234,697 Rubber springs for vehicle connections. O. Y. Imray, 30 South-ampton Buildings, London. International Motor Co., 25 Broadway, New York, N. Y., U. S. A.

234,702 Rubber ankle reducing device and foot arch support. F. A. S. Gwatkin, 31 Basinghall street, London. I. B. Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., U. S. A.

234,712 Vehicle tires. W. A. Sillitoe, 9 Barnsbury Terrace, Barnsbury, London.

234,713 Golf and play balls with cores of rubber composition. A. S. Chatfield, South Carson avenue, Flushing, New York, U. S. A.

234,716 Insulating gloves and boots formed of two layers of differently colored rubber. St. Helen's Cable & Rubber Co., Ltd., and H. C. Harrison, Trading Estate, Slough, Buckinghamshire.

234,720 Air cushions with rubber inflating tubes and rubber collars. E. S. Farrell, and C. Mackintosh & Co., Ltd., Cambridge street, Manchester.

234,725 Rubber springs and connection interposed between two metallic parts of a motor vehicle. W. W. Groves, 30 Southampton Buildings, London. International Motor Co., 25 Broadway, New York, N. Y., U. S. A.

234,747 Spring suspensions with rubber block for vehicles. O. Y. Imray, 30 Southampton Buildings, London. International Motor Co., 25 Broadway, New York, N. Y., U. S. A.

234,752 Egg box, partly constructed of rubber. M. M. S. Muhleder, Lansdowne Place, Hove, Sussex.

234,757 Garters or suspenders for socks. R. A. Moore, 38 Kellogg street, Waterbury, Connecticut, U. S. A.

234,760 Vent peg with tubular rubber body. J. Wright, 9 Wells Terrace, Finsbury Park, London.

234,783 Wheel tires. E. Bugatti, Molsheim, Bas-Rhin, France.

July 29, 1925

234,858 Machine, partly comprised of rubber, for pulping coffee. J. M. Cameron, 57 Fitz James avenue and A. G. Cameron, 2a Upper Thames street, both in London. (Representatives of A. Cameron)—(W. Isherwood, Nairobi, East Africa.)

234,869 Neckties with elastic insertions. H. Spencer, 10 St. James' Place, London.

234,912 Surgical trusses comprising a waistband of rubber and other parts of rubber. H. W. Franklin, 11 Colverstone Crescent, Dalston, London.

234,987 Method of preventing condensation on windows by means of a grooved rubber packing strip, etc. K. R. Gordon-Barrett, 48 Kinsbury Square, Aylesbury, Buckinghamshire.

234,988 Handbag with elastic band. L. Frank, Westmoreland Buildings, Aldersgate street, London.

234,989 Inhalers with a rubber sheath. W. J. Roberts, 51 Park Road, Peterborough.

235,011 Wheel tires. Roberts & Sons, Ltd., and G. A. Roberts, Deykin avenue, Witton, Birmingham.

235,056 Corset of sheet rubber, for reducing. W. Kops, 525 West End avenue, Manhattan, New York, N. Y., U. S. A.

235,097 Holding device for windows, including a rubber buffer. H. V. N. Gravely, 5 Golders Rise, Hendon, London.

235,116 Protectors securing detachable treads for soles or heels of boots, etc. R. B. Chalue, 27 Lauder avenue, Toronto, Canada.

235,137 Rim flap of rubber. D. R. Dixon, 729 West Lexington street, Baltimore, Maryland, U. S. A.

235,166 Centrifugal machines with rubber tubes, rings, etc. Glanzfaden-Akt.-Ges. Petersdorf, Riesengebirge, Germany.

### New Zealand

July 2, 1925

53,590 Loud speaker for telephones, including rubber foundation. Marconi's Wireless Telegraph Co., Ltd., of Marconi House, Strand, assignee of Henry Joseph Round, 9 Woodbury Crescent, Muswell Hill, both in London, England.

54,018 Tire. Cyril Alfred Harvey Brown, Rofflyn House, King's Drive, Thames Ditton, England.

July 16, 1925

51,621 Milking machine teat cup with rubber inflation. Henry Enovald Kjestrup, Rangitumau, Masterton, New Zealand.

54,003 Stopper. Samuel Jones and Co., Ltd., 7 Bridewell Place, London, E. C. 4, assignee of Harry Victor Major, 16 Derwent Road, Anerley, London S. E., both in England.

54,057 Vehicle tire. Joseph Findling, 504 West 159th street, New York, N. Y., U. S. A.

**Germany**  
**Patents Issued**

416,722 (August 21, 1924) Rubber bathing sandal. Edwin A. Guinzburg, New York, N. Y. Represented by F. Schwerterley, Berlin S. W. 11.

417,499 (December 6, 1924) Bathing cap. Lynn Wheelock Beman, Chicago, Illinois. Represented by B. Kugelmann, Berlin-Wilmersdorf.

417,500 (July 11, 1924) Dress shield. Willy Lickowski, Belle-Alliance-Platz 20, Berlin.

**Trade Marks**  
**The United States**

**Two Kinds of Trade Marks Now Being Registered**

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

**July 14, 1925, Act of February 20, 1905**

200,812 Suction cup hooks. Harry Wallace, Elizabeth, New Jersey.

**July 14, 1925, Act of March 19, 1920**

201,047 FOUNTAIN PEN FILLING STATION—words are in capitals and are used in two lines; the F and the N are sufficiently large to serve as the first and last letters of both lines—ink dispensing apparatus. The F-N Co., Chicago, Illinois.

201,055 CHROME GRAVURE—tire covers. Parker & Waterman Manufacturing Co., Los Angeles, California.

201,081 THE LOUIS MARK SHOES OF QUALITY—second, third and fourth words are in larger type, with the word "MARK" in black and the others in outline letters, all superimposed on a ribbon; the other three words are outside the ribbon—rubber and other shoes. Louis Mark Shoes, Philadelphia, Pennsylvania.

201,084 SEVERE SERVICE—belting, packing and hose. The Continental Supply Co., St. Louis, Missouri.

201,088 EVERLASTING—the word set in a curve—automobile tires. John Talos, Akron, Ohio.

**July 21, 1925, Act of February 20, 1905**

201,123 Word: BAB in flowing script—shoes of rubber, leather, etc. Maurice Wyman, Baltimore, Maryland.

201,181 GEM-DANDY—suspenders, belts, arm bands, etc. Gem-Dandy Garter Co., Madison, North Carolina.

201,223 FLEXOFOLD—fountain pens. The Parker Pen Co., Janesville, Wisconsin.

201,237 Words: EINGLING CIRCUUS in two lines enclosed in oblong square, which is surrounded by animals and humans performing circus feats—rubber stamps. Globe Stamp & Seal Co., Little Rock, Arkansas.

201,340 Figures and word: 9500. WHISK in two lines of black type—rubber eraser. Weldon Roberts Rubber Co., Newark, New Jersey.

201,342 "HIPPO HIDE"—rubber bands. Eberhard Faber Pencil Co., Brooklyn, New York.

201,358 Word: RE-CORD—in semi-script with end of letter R lengthened to touch bottom of letter C; all enclosed in oblong square formed of curving lines. Inner tubes for pneumatic tires. Racine Auto Tire Co., Racine, Wisconsin.

**July 21, Act of March 19, 1920**

201,360 Word: LONGWEAR with letters growing smaller towards each end of word; all enclosed in two diamond-shaped borders—rubber belting, etc. Couch & Heyle (Inc.), Peoria, Illinois.

201,382 RE-FORM—dental, medical and surgical appliances such as arch supports, cushions and straighteners, etc. Scholl Manufacturing Co., Chicago, Illinois.

201,385 LASTIC-WEV—elastic surgical bandages and supporters. Thomas Henry & Sons, Inc., Philadelphia, Pennsylvania.

**Renewals**

27,043 Writing pens, registered September 10, 1895; renewed September 10, 1925. Abram L. Salomon, New York, N. Y.

45,111-45,112 Men's suspenders. Registered August 8, 1905. Hewes & Pitter, Boston, Massachusetts. Renewed August 8, 1925.

45,673-45,781 Fabric hose. Registered August 29, 1905. Eureka Fire Hose Co., Jersey City, New Jersey. Renewed August 29, 1925, to Eureka Fire Hose Manufacturing Co., Jersey City, New Jersey, and New York, N. Y., successor.

46,105 Fabric hose. Registered September 5, 1905. Eureka Fire Hose Co., Jersey City, New Jersey. Renewed September 5, 1925, to Eureka Fire Hose Manufacturing Co., Jersey City, New Jersey, and New York, N. Y., successor.

46,106 Hydraulic hose. Registered September 5, 1905. Eureka Fire Hose Co., Jersey City, New Jersey. Renewed September 5, 1925, to Eureka Fire Hose Manufacturing Co., Jersey City, New Jersey, and New York, N. Y., successor.

46,182 Fabric hose. Registered September 12, 1905. Eureka Fire Hose Co., Jersey City, New Jersey. Renewed September 12, 1925, to Eureka Fire Hose Manufacturing Co., Jersey City, New Jersey, and New York, N. Y., successor.

46,258 Fabric belting. Registered September 12, 1905. Eureka Fire Hose Co., Jersey City, New Jersey. Renewed September 12, 1925, to Eureka Fire Hose Manufacturing Company, Jersey City, New Jersey, and New York, N. Y., successor.

**July 28, 1925, Act of February 20, 1905**

201,482 Representation of head and shoulders of girl in colonial costume. She is holding a strip of bunting to give the impression of a flag. A flat wheel and sewing basket are shown. Under the figures is a ribbon with the words: "BETSY ROSS" in script. Below the picture the words: As Famous as "BETSY ROSS" of Revolutionary Fame—elastic specialties, girdles, belts, etc. B. & R. Mfg. Co., Inc., West Hoboken, New Jersey.

**August 4, 1925, Act of February 20, 1905**

201,693 CATSPA—spring cushions for automobiles. Arch Cushion Corporation, New York, N. Y.

201,717 DERBY with letters arranged in a very slight curve—tires and inner tubes. The Pharis Tire & Rubber Co., Newark, Ohio.

201,718 STRONGFATH—inner tubes, tires, etc., composed wholly or in part of rubber. The Goodyear Tire & Rubber Co., Akron, Ohio.

201,719 Oval with smaller oval in center; in latter is word: PARAMOUNT—rubber belting. Dallas Belting Co., Dallas, Texas.

201,723 RADIKUSHION; letters arranged in a semi-circle—rubber supporting foot pads for cabinets and other articles. Taunton Rubber Co., Taunton, Massachusetts.

201,735 Representation of a tire as if rolling almost towards one, but slightly sideways—vehicle tires mainly of rubber. Beacon Tire & Rubber Corporation, Beacon, New York.

201,736 Representation of a tire rolling towards you, but slightly sideways—vehicle tires mainly constructed of rubber. Beacon Tire & Rubber Corporation, Beacon, New York.

201,737 Representation of a tire rolling towards you, but slightly sideways—vehicle tires mainly constructed of rubber. Beacon Tire & Rubber Corporation, Beacon, New York.

201,750 MAXI-CUSHION; letters are small outline letters arranged in a semi-circle—resilient vehicle tires of rubber, rubber composition or rubber and fabric. The Firestone Tire & Rubber Co., Akron, Ohio.

201,751 Shield enclosing a large fancy outline letter F—rubber solid and pneumatic tires, tire accessories, repair materials, etc. The Firestone Tire & Rubber Co., Akron, Ohio.

201,757 Representation of a circle with lower part disappearing into an oblong; in circle is the picture of an eastern native gathering rubber from a rubber tree; the words Rubber Latex appear in small type at one side of the tree, in the oblong is the word: R U LATEX and in small type below the words: A seamless rubber flooring—flooring composed of rubber latex reinforced with asbestos fiber, etc. Latex Products, Inc., New York, N. Y.

201,768 Representation of a diamond enclosing the words: "At Your Service." PATCH—material to patch inner tubes, hot water bottles, rubber shoes and other rubber repair work. Robert H. Hartman, Baltimore, Maryland.

201,794 Representation of semi-curving oblong; at each end but separated from the oblong is a fancy pyramid turned slightly sideways—pneumatic tires composed chiefly of rubber and fibrous materials. The B. F. Goodrich Co., New York, N. Y.

**The Dominion of Canada**

**Registered**

**July 14, 1925**

38,060 Representation of a wild goose flying over a body of water in which appear the tops of a number of pine trees; the wings of the goose are extended out and down, and the left side of the bird appears on the representation; the whole is in circular shape surrounded by two lines relatively close to each other—automobiles. Willis Sainte Claire, Inc., Boston, Massachusetts, and Marysville, Michigan, both in U. S. A.

38,672 "PONTOP"—leather, artificial leather, filled, coated, uncoated or impregnated fabrics, etc., and articles made therefrom. Canadian Fabrikoid, Limited, Montreal, Quebec.

38,073 TONTINE—leather, artificial leather, filled, coated or uncoated or impregnated paper and fabrics, and articles made therefrom. Canadian Fabrikoid, Limited, Montreal, Quebec.

38,074 CRAFTSMAN—leather, artificial leather and filled, coated, uncoated or impregnated fabrics and articles made therefrom. Canadian Fabrikoid, Limited, Montreal, Quebec.

**July 20, 1925**

38,112 Word: AJAX—hand trucks for lifting and transporting commodities. Ajax Trucks, Limited, No. 5 Atlantic Chambers, No. 7 Brazenose street, Manchester, County Lancaster, England.

38,114 Word: "OILTEX." Coats, hats and jackets. Cambridge Rubber Co., Cambridge, Massachusetts, U. S. A.

38,120 Word: "CELASTIC" General United Shoe Machinery Corporation, Paterson, New Jersey, and Boston, Massachusetts, U. S. A.

**August 4, 1925**

38,184 Words: "BUBBLE BOAT"—rubber goods as applied to floats or rafts for swimming or sailing purposes and the like. Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

## The United Kingdom

July 8, 1925

448,722 WHALITE—high pressure packing composed chiefly of india rubber. Douglas Rangeley Radford, 52 Lewisham High Road, London, S. E. 14.

454,448 The word: OLDFIELD with the first letter represented by a tire and much larger than the other letters which steadily decrease in size. They are arranged to represent a fast moving automobile and the wind is apparently blowing back across them—rubber tires and inner tubes. The Oldfield Tire Co., corner of South Main street and Cole avenue, Akron, Ohio, U. S. A.

455,439 Representation of a sling with words: CATAFULT and EVERLASTIK in capital letters on separate lines beneath picture—all goods in Class 13. Percy Mountford, trading as P. Mountford & Co., International Works, Railway street, Lye, Stourbridge.

459,203 TOPICAL—articles of clothing, but not including boots and shoes or articles similar to them. The Express Rubber Co., Limited, 1 to 7 Worship street, London, E. C. 2.

July 15, 1925

459,278 PARAGLAZE—vulcanite surfaces for dental purposes. The Dental Manufacturing Co., Limited, Alston House, Newman street, London, W. I.

458,312 KNEEL-ON-AIR—solid india rubber mats. James Lyne Hancock, Limited, 266 Goswell Road, London, E. C. 1.

July 22, 1925

459,798 STANDAMAC—rainproof and waterproofer garments. Joshua Abrams, trading as The Standard Weathercoat Co., Standard Works, Lyte street, Cambridge Heath, London, E. 2.

459,800 PLIMINOR—Plimsools. The New Liverpool Rubber Co., Limited, 292 Vauxhall Road, Liverpool.

July 29, 1925

458,478 Shield showing representation of a ram. In the background is the rising sun casting its rays over the animal. Beneath are the words: GOLDEN FLEECE and below the monogram of the firm—overcoats and raincoats. Gerrish, Ames & Simpkins, Limited, 63, 65 and 67 Carter Lane, London, E. C. 4.

459,318 XETAL—goods manufactured from india rubber and gutta percha, not included in other than class 40. Safety Glass and Xetal Products, Limited, 1 Queen Victoria street, London, E. C. 4, and Nottingham Road, Stapleford, Nottinghamshire.

459,720 KALLEDE—electric wire covered with india rubber. Callender's Cable and Construction Co., Limited, "Hamilton House," Victoria Embankment, London, E. C. 4.

## Designs

## The United States

67,792 Vehicle tire. Term 7 years. Henry W. Clark, Rochester, New York, assignor to Clark Rubber Syndicate, Danville, Illinois.

67,799 Rubber shoe heel. Term 14 years. Dudley Freeman, Roxbury, assignor to Panther Rubber Manufacturing Co., Stoughton, both in Massachusetts.

67,830 Tire tread. Term 14 years. Charles Escher, Jersey City, New Jersey.

67,849-67,856 Tire treads. Term of patent 14 years in each case. Harold D. Reichard, Akron, Ohio.

## The Dominion of Canada

6,741 Combination life preserver and garment. Calvin McQuesten, Hamilton, Ontario.

6,743 Combination canoe cushion and life preserver. Calvin McQuesten, Hamilton, Ontario.

6,762 Tire. The Goodyear Tire & Rubber Co. of Canada, Ltd. New Toronto, Ontario.

## Germany

909,565 (March 14, 1925). Sanitary bandage. Ernest Stübner, Lugau i. S.

909,568 (March 16, 1925). Rubber nipple for infants. Mitteldeutsche Gummi- und Guttapercha-Industrie, Edelmath & Co., Frankfurt-am-Main.

909,638 (April 8, 1925). Woven rubber band. Cosman, Villbrandt & Zehnder A.-G., Elberfeld.

909,653 (April 9, 1925). Perforated bath-mat of rubber. Hermine Weinheimer, nee Meyer, Schäferstrasse 16, Düsseldorf.

909,666 (April 11, 1925). Bathing cap of sheet rubber. Radium-Gummiwerke m. b. H., Köln-Dellbrück.

909,675 (April 14, 1925). Sanitary bandage. Firma Franz Vollmann, Nürnberg.

909,694 (April 18, 1925). Rubber teething ring with band. Maria Julius, nee Neckermann, Brückenstrasse 32, Heidelberg.

909,714 (January 14, 1925). Wheel for trucks with solid tires. Siemens-Schuckertwerke G. m. b. H., Berlin-Siemensstadt.

909,815 (May 27, 1924). Black belt with band of balata or the like. Rudolf Röderwald, Menzelstrasse 9, Berlin-Grunewald.

909,888 (April 1, 1925). Cover protector for pneumatic tire. Josef Grötzingen and Wilhelm Flad Jr., Biberach a. d. Riss.

909,922 (April 11, 1925). Lamp shade of sheet rubber. Radium-Gummiwerke m. b. H., Köln-Dellbrück.

909,923 (April 11, 1925). Rubber tire. Alfred Ahrens, Eschenburgstrasse 11, Braunschweig.

909,926 (April 11, 1925). Table cover of sheet rubber. Radium-Gummiwerke m. b. H., Köln-Dellbrück.

909,936 (April 15, 1925). Device for protecting pneumatic tires. Firma Tanser-Ringen, Aarhus, Denmark. Represented by A. Demeter, Berlin S. W. 68.

909,979 (April 18, 1925). Spraying device. Jacob W. Levy, New York. Represented by W. Massohn, Berlin S. W. 68.

910,018 (January 24, 1925). Rubber ball. Mitteland Gummiwerke A.-G., Hannover-Linden.

910,058 (April 14, 1925). Exchangeable rubber heel. Friedrich Emmerich, Cölnnerstrasse 278, Düsseldorf.

910,193 (April 3, 1925). Bath infay of sponge rubber for the care of the skin of the back. Adolf Müller, Eltvilie a. Rh.

910,218 (April 8, 1925). Exchangeable partition, covered with rubber, for dyeing vats. Richard Wagner, Gunnersdorf bei Frankenberg i. Sa.

910,233 (April 14, 1925). Elastic tread for soles and heels. Nordgummiwerke A.-G., Berlin.

910,497 (April 23, 1925). Horse shoe with rubber insert. Ernst Edmund Adam, Zittau i. Sa.

910,615 (September 23, 1924). Crimped rubber cover for telephone receiver. Gummiwarenfabrik Carl Plaat, Köln-Nippes.

910,698 (April 11, 1925). Rubber ball with rubber thread. Jakob Rub, Friedhofstrasse 8, Hamborn a. Rh.

910,751 (April 22, 1925). Bag of sheet rubber for sponges and the like. Radium-Gummiwerke m. b. H., Köln-Dellbrück.

910,811 (August 23, 1924). Rubber tube. Wilhelm Ebmeier, Sonnenbergerstrasse 48, Wiesbaden.

910,819 (October 14, 1924). Valve for inner tube. Karl Berck, Bruchfeldstrasse 3, Frankfurt-am-Main.

910,839 (March 6, 1925). Rubber tire for motor vehicles and bicycles. Heinrich Hübgens and Franz Brandt, Korschenbroich-Neersbroich.

910,933 (April 23, 1925). Rupture band. Max Kahnemann A.-G., Berlin.

911,011 (September 5, 1924). Foot-rest in the shape of a semi-circular pouch filled with pieces of sponge rubber. Theodor Brügel, Breitlingstrasse 52, Stuttgart.

911,142 (April 27, 1925). Rubber band for wrist watch. Wilhelm Becker, Unt. Wimpfenstrasse 1, Pforzheim.

911,221 (November 5, 1924). Non-skid tire. Max Lehnert, Palmstrasse 29, Chemnitz.

911,255 (April 21, 1925). Bust confiner of sheet rubber. Flügel & Polter, Leipzig-Plagwitz.

911,370 (April 29, 1925). Silencer with resilient rubber buffer for doors. Otto von der Vecht Nachfälger, Dortmund.

911,470 (April 24, 1925). Rubber heel for women's light shoes. Klinghammer & Co., Schwelm.

911,538 (March 4, 1925). Thread packing for bottle disks of rubber. Sam Baron Hannoversche Gummiwarenfabrik, Hannover-Hainholz.

911,550 (April 4, 1925). Rubber sponge bag. William Sachs, Lessingstrasse 33, Berlin.

911,676 (May 2, 1925). Air top of rubber with steel ring inserts and groove. Karl Teichmann, Nonnenrain 65, Erfurt.

911,713 (July 21, 1924). Rubber ball. Wilh. Ebmeier, Sonnenbergerstrasse 48, Wiesbaden.

911,805 (April 24, 1925). Linen protector of rubberized fabric or the like with band fastening. Fritz Neumann, Mainkur and Eduard Huth, Neu-Isenburg.

911,960 (January 24, 1925). Rubber mouth-piece for tobacco pipes or the like. Albert Riemekasten, Hinsdorferstrasse 4, Dessau.

911,972 (May 4, 1925). Seamless, dipped preservative of rubber band in marbled design. Gummiwarenfabrik M. Steinberg, Köln-Lindenthal.

911,973 (May 4, 1925). Seamless dipped household and operation glove with marbled design. Gummiwarenfabrik M. Steinberg, Köln-Lindenthal.

911,974 (May 4, 1925). Seamless dipped rubber nipple, marbled. Gummiwarenfabrik M. Steinberg, Köln-Lindenthal.

912,298 (May 16, 1925). Toilet-bag of rubber. Phil. Penin Gummiwarenfabrik A.-G., Leipzig-Plagwitz.

912,472 (May 7, 1925). Rubber tube. Nordgummiwerke A.-G., Berlin.

912,555 (April 21, 1925). Rubber cushion and the like with reinforcement of edge in contrasting color. Schack & Pearson, Hamburg.

912,567 (April 27, 1925). Balloon swimming cushion. Sachsland Gummiwarenfabrik, Birgel i. Th.

## Prints

## The United States

July 14, 1925

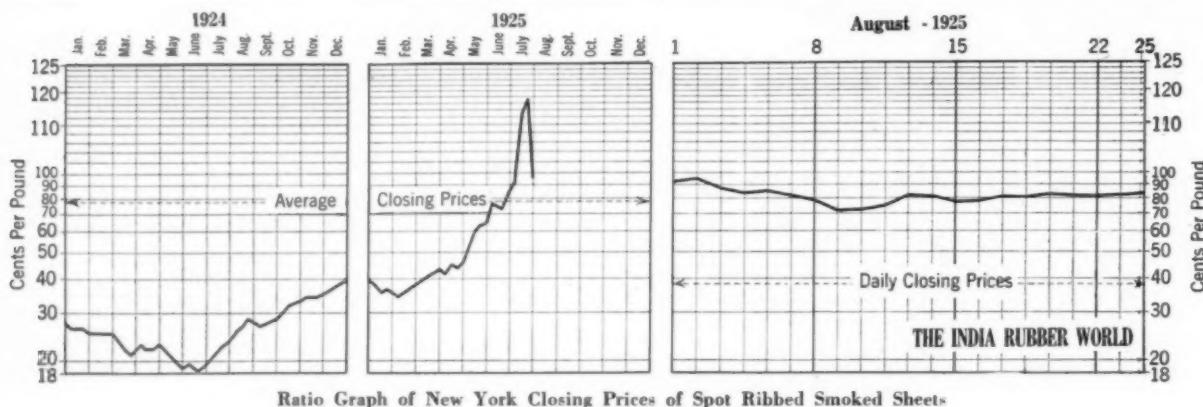
8,081 Title: Something New Underfoot Evernu. Rubber heels. Evernu Rubber Heel Corporation, New York, N. Y. Published April 24, 1925.

8,090 Title: Use the Bulb with the Suction Shut-off—Then Notice the Difference. For tank bulb. Ross Manufacturing Company, Kansas City, Missouri. Published May 26, 1925.

8,098 Title: Good (Wingfoot) Year Wingfoot Soles for Walking. For Working. For soles composed wholly or in part of rubber. The Goodyear Tire & Rubber Co., Akron, Ohio. Published May 5, 1925.

8,099 Title: Will Balloons Stand the Gaff? They Will if They are Made with Supertwist—Good (Wingfoot) Year Made with Supertwist. For vehicle tires composed wholly or in part of rubber. The Goodyear Tire & Rubber Co., Akron, Ohio. Published May 18, 1925.

8,100 Title: Good (Wingfoot) Year Truck Tires Good Wear (Dealer's name-address). For vehicle tires composed wholly or in part of rubber. The Goodyear Tire & Rubber Co., Akron, Ohio. Published April 10, 1925.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

## Review of the Crude Rubber Market

### New York

THE rubber market during August was comparatively free from the active speculative influences that ruled in July.

Between August 1st and 25th the market declined. The urgent consuming demand for spot having been satisfied for the time being there was very little doing in the local market during the first week of August. On August 1st, spot smoked sheets were 95 cents buyers, 96 cents sellers. There was some factory interest in September rubber but as a rule buyers were scarce and on August 8th, ribs were 74 cents buyers, 75 cents sellers. In other words during the week the price of ribs had fallen 40 cents a pound below the June peak.

On July 31st, the British Colonial office announced that the exportable allowance for three months from August 1st will be increased 10 per cent of standard production in accordance with the Stevenson plan. This decision raises the exportable allowance to 75 per cent and represents according to London estimates a total gain for the next quarter of 8,700 tons.

A notable factor was the gain in London stocks the effect of which was noted each week as the stocks increased.

August 10th ribbed smoked sheets were 72 cents buyers, 72½ cents sellers. The market then became erratic. Firmness predominated and active trading and buying brought the price up on the 13th to 83 cents buyers, 84 cents sellers.

The market closed very dull and weak August 15th with no buyers, at 78 cents buyers, 79 cents sellers. The week end drop was also induced by profit taking by London speculators, lower cables from Singapore and reported selling back by factories of October-December rubber.

The market of the week ended August 22nd opened weak at

77 cents buyers, 77½ cents sellers. The demand for spot rubber was much abated, such buying interest as was evident centered on future positions. Prices for the week, however, advanced in response to firmness in the London market. The week closed dull on August 22nd with spot ribs at 82 cents buyers, 83 cents sellers. Pale crêpe in small lots gradually advanced to a premium of 7 cents ribs on August 22nd, because of over spot and the practical absence of pale crêpe from the local market.

African grades were not in much demand, red and black Kassai being the principal grades available.

Parás are generally weak and not in marked demand. Off grade Parás and balatas were neglected.

Importations of all grades during July were 33,918 tons, compared with 19,969 tons one year ago. Plantation arrivals for July were 32,147 tons, compared with 18,390 tons one year ago. Total importations of plantation rubber for seven months ended July 31st were 201,546 tons, compared with 165,201 tons for the corresponding period of 1924. Total importations of all grades of rubber for the seven months ended July 31st, 1925, were 215,705 tons compared with 174,785 tons for the corresponding period of last year.

### London

The course of the London market was practically the same in range and variations of prices as that in New York. Following the holiday with which the month began the August market opened weak. Imports exceeded deliveries. In the first week the price declined 2½ d per pound. The week ended August 15th the chief interest centered in speculation on future positions. Spot and nearby declined and the week closed with futures

### New York Spot Closing Rubber Prices

Sheet	July, 1925												August, 1925											
	20	21	22	23	24	25	27	28	29	30	31	1	3	4	5	6	7	8	10	11	12	13	14	15
Ribbed smoked	1.21	1.17½	1.19	1.17½	1.12½	1.07½	96½	93½	89½	93½	94½	95½	88½	85½	86½	81½	79	71½	72½	76½	81½	80½	77½	
Crêpe																								
First latex	1.17½	1.15	1.17½	1.15½	1.10½	1.05½	96½	92	88½	93½	94	95½	87½	84½	85	80½	78	73½	74½	77	81½	81½	78½	
Off latex	1.15½	1.13	1.13½	1.12½	1.07½	1.07½	1.03½	95½	93½	89½	87½	91	91½	93½	85½	82	82½	79½	75½	70½	70½	74½	78	75
No. 2 blanket	1.06½	1.04½	1.05½	1.03½	97½	98½	95½	85	81½	77½	82½	83½	82½	78	79½	75½	73½	71	65½	65½	69½	73½	72½	69½
No. 3 blanket	1.04½	1.02½	1.03	1.02½	94	93	91½	83	77½	74	80½	81½	80½	76	78½	74	72	69	64½	64	67½	71½	70½	67½
No. 4 blanket	1.00	97	98	96½	90½	91½	89½	82	75½	71½	78½	79½	78½	74	76½	71½	68½	67	61½	61½	65½	69½	68½	65½
Thin clean																								
brown	1.03½	1.01½	1.04½	1.01½	96½	96½	93½	83½	77½	74½	81	81½	81½	76½	72½	74½	71½	68½	64½	64	67½	73½	72½	65½
Specky brown	99½	97½	1.01	1.00	94½	94½	89½	80	75½	71	72½	73½	73½	67½	68½	67½	59½	57½	47½	48½	50½	54½	54½	52½
Rolled brown	86½	82½	81½	81½	78½	78½	76½	70½	63½	61½	72½	73½	73½	67½	68½	67½	59½	57½	47½	48½	50½	54½	54½	52½

\*Will be unable to furnish prices on Specky Brown after this date.

up fractionally and the market supported by large interests.

The week ended August 22nd prices were more variable than in the previous week. New York support and local interest effected an advance early in the week. Futures declined fractionally but spot and August gained  $\frac{1}{2}$  d. August 22nd spot ribs were 41 d. buyers, 41 $\frac{1}{4}$  d. sellers and futures gained fractionally.

The weekly reports of London stocks show a steady advance in tonnage since June 27th. The gain during the intervening period was 1,382 tons. The weekly stocks were as follows: August 3rd, 4,281 tons; August 10th, 4,576 tons; August 17th, 5,096 tons; August 24th, 5,396 tons.

### Singapore

The market for August began depressed and weak following the decline in July. August 1st ribs closed at 41 $\frac{1}{2}$  d. Heavy offerings during the first week of the month were undertaken owing to lack of buying interest. In the week ended August 15th there were steady gains and some sharp advances on speculative buying. The week closed with an abrupt halt of the buying movement with ribs August 15th at 34 $\frac{1}{2}$  d.

The week ended August 22nd, price advances of the preceding week were lost. The market became dull. Although it was relieved by better western support the week closed with ribs at 35 d. and declining because of absence of buying interest.

### New York Quotations

Following are the New York spot and future rubber quotations, for one year ago, one month ago, and August 25, the current date:

#### Plantation Hevea

August 25, 1924 July 25, 1925 August 25, 1925

Rubber latex (Hevea) ... gal. \$1.30 @ \$3.50 @ \$2.75 @

#### CREPE

First latex, spot	.27	.27 $\frac{1}{4}$	1.15	@ 1.15 $\frac{1}{4}$	.83	@ .85
Aug.-Sept.	.27	.27 $\frac{1}{4}$	1.03	@ 1.04 $\frac{1}{4}$	.80	@ .82
Oct.-Dec.	.27 $\frac{1}{4}$	.27 $\frac{1}{4}$	.92	@ .94	.67	@ .68
Jan.-March	.27 $\frac{1}{4}$	.27 $\frac{1}{4}$	.85	@ .86	.61	@ .62
Jan.-June					.60	@ .60 $\frac{1}{2}$
Off latex	.27	.27	1.14	@ .82	.82	@ .82
Amber No. 2, spot	.26	.26 $\frac{1}{4}$	.94	@ .95	.74	@ .74
Aug.-Sept.	.25 $\frac{1}{4}$	.26	.85	@ .87	.70	@ .70
Oct.-Dec.	.25 $\frac{1}{4}$	.26	.83	@ .84	.64	@ .64
Jan.-March	.26	.26 $\frac{1}{4}$	.79	@ .80	.52	@ .52
Jan.-June					.50	@ .50
Amber No. 3	.25 $\frac{1}{4}$	.26			.73	@ .73
Brown, thin, clean	.26	.26			.72	@ .72
Brown, specky	.25 $\frac{1}{4}$	.26			.70	@ .70
Brown, roll	.24	.24 $\frac{1}{4}$	.79	@ .80	.58	@ .58
Sole crêpe	.45	.46	1.15	@ .86	.86	@ .86

#### SHEET

Ribbed, smoothened, spot	.26 $\frac{1}{4}$	.26 $\frac{1}{4}$	1.15	@ 1.16	.82	@ .83 $\frac{1}{2}$
Aug.-Sept.	.26 $\frac{1}{4}$	.26 $\frac{1}{4}$	1.04	@ 1.05 $\frac{1}{4}$	.79	@ .80
Oct.-Dec.	.26 $\frac{1}{4}$	.26 $\frac{1}{4}$	.93	@ .95	.67	@ .68
Jan.-March	.26 $\frac{1}{4}$	.26 $\frac{1}{4}$	.63	@ .64	.61	@ .63
Jan.-June					.60	@ .60 $\frac{1}{2}$

#### East Indian

##### PONTIANAK

Banjermassan	.06 $\frac{1}{2}$	@ .07 $\frac{1}{2}$	.09 $\frac{1}{4}$	@ .10 $\frac{1}{4}$		
Palembang	.08	@ .08				
Fressed block	.12 $\frac{1}{4}$	@ .12 $\frac{1}{4}$	.17	@ .17		

Sarawak .05 $\frac{1}{2}$

#### British

#### Malaya

#### Foreign

#### Java and

#### Sumatra

#### (E. Coast)

#### Ceylon

#### Plus

#### Rest

#### — Minus

#### Total

#### Brazil

#### Wild

#### Total

#### Grand Total

#### January

9,051 10,132 3,102 5,065 3,413 —220 30,543 2,053 425 2,478 31,021

#### February

11,551 10,071 3,546 5,090 2,096 —410 31,943 3,045 550 3,595 35,539

#### March

13,437 13,399 4,657 5,553 3,973 —475 40,544 1,846 637 2,483 43,027

#### April

20,664 11,750 4,187 4,703 3,200 —310 34,824 1,936 576 2,512 37,326

#### May

13,688 12,979 3,683 4,456 3,198 —790 37,124 1,858 960 2,818 39,942

#### June

13,188 14,706 4,253 — 3,460 — 39,000\* 1,590 497 2,087 41,087

Totals (6 months) 71,579 73,037 23,528 24,867 19,250 —1,585 213,969 12,328 3,645 15,973 229,942

#### 4 15

152,316 107,418 43,383 53,234 37,036 —1,780 301,607 23,514 6,096 29,610 421,217

#### 14 69 1/2

183,943 68,203 34,100 45,930 37,079 15,496 384,771 22,580 5,420 28,000 412,771

#### 14 67 1/2

248,158 31,558 40,552 47,367 —12,655 354,983 21,735 3,205 24,940 379,920

#### 14 65 1/2

188,881 28,366 29,569 40,211 —13,794 271,233 19,837 2,890 22,727 293,960

#### 14 65 1/2

239,481 52,105 40,970 —17,749 304,816 30,790 8,125 38,915 343,731

#### 14 52 1/2

1919 254,343 64,291 40,000 —18,409 340,225 34,285 7,350 41,635 381,860

\*About 86 per cent imported from Dutch Islands. Allowance deducted for moisture in native rubber must be added to column (a). \*Estimated.

†And adjustments.

World's Rubber Position. W. H. Rickinson & Son, London, England.

#### South American

PARAS August 25, 1924 July 25, 1925 August 25, 1925

Upriver, fine	.29 $\frac{1}{4}$	@ .30	1.07	@ 1.08	.72	@
Upriver, medium	.37	@			.95	@
Upriver, coarse	.24	@			.65	@
Upriver, course	.23	@			.74	@
Islands, fine	.27 $\frac{1}{2}$	@ .28	.94	@ .95	.61	@
Islands, medium	.22	@			.36	@
Islands, coarse	.15	@			.35	@
Cametá	.17 $\frac{1}{4}$	@			.72	@
Acre, Bolivian, fine	.29	@			.95	@
Acre, Bolivian, fine	.38	@			.72 $\frac{1}{2}$	@
Beni Polivian	.29 $\frac{1}{2}$	@			.72 $\frac{1}{2}$	@
Madeira, fine	.30	@			.73	@
Peruvian, fine	.26	@			.67	@
Tapajos, fine	.25 $\frac{1}{2}$	@			.65 $\frac{1}{2}$	@

#### CAUCHO

Upper caucho ball	.21	@	.74	@	.52	@
Upper caucho ball	.27 $\frac{1}{2}$	@ .28			.80	@

#### Lower caucho ball

Lower caucho ball	.16 $\frac{1}{4}$	@	.70	@	.49	@
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#### Manigobas

Ceará negro heads	.14	@	.75	@	.50	@
Ceará scrap	.08	@	.50	@	.40	@
Manigobas 30% guaranty	.18	@	.60	@	.45	@
Mangabeira, thin sheet	.21	@	.55	@	.45	@

#### Centrals

Central scrap	.18	@ .20	.70	@	.64	@
Central wet sheet	.12	@ .14			.44	@
Corinto scrap	.18	@ .20	.72	@	.49	@ .50
Esmeralda sausage	.18	@ .20	.72	@	.50	@
Guayule washed and dried	.24	@	.63	@	.64	@

#### Africans

Black Kasai prime	.18	@	.64	@	.59	@
Red Kasai						
Black Upper Congo	.18	@				
Red Upper Congo	.19	@				
Kasai Loanda						
Upper Congo Arumini						
Masai (Konakry)						

#### Gutta Percha

Gutta Siaik	.16	@ .17	.21	@	.22	@
Gutta Soh	.20	@ .26	.30	@	.30	@
Red Macassar	3.00	@ 3.00	3.00	@	3.50	@

#### Balata

Block, Ciudad Bolívar	.65	@ .67	.63	@	.63	@ .64
Colombia	.55	@ .57	.53	@	.53	@ .54
Panama	.55	@ .57	.53	@	.53	@ .54
Surinam, sheet	.77	@ .78	.77	@	.77	@ .76

#### Chile

Honduras	.58	@ .63	.58	@	.58	@ .68
Yucatan, fine	.58	@ .68	.58	@ .68	.58	@ .68

\*Washed and dried crepe. Shipment from Brazil.

†Nominal.

‡Duty paid.

§Figured to August 25, 1925.

||Figured to August 25, 1925.

\*\*Figured to August 25, 1925.

††Figured to August 25, 1925.

‡‡Figured to August 25, 1925.

§§Figured to August 25, 1925.

\*\*Figured to August 25, 1925.

## Reclaimed Rubber

The leading feature of the market for reclaims the past month was the marked reduction in prices that occurred about the middle of the month. This reduction was due to the sudden collapse in prices for rubber scrap and affected every grade of reclaim except mechanical blends. Back of the fall in scrap was the passing of the peak in crude rubber prices. Reclaimers seek only a reasonable profit on their product and in fairness to their customers promptly readjusted prices to the lower range of scrap prices now prevailing.

Reclaiming plants are running on overtime schedule based on orders in excess of capacity output. Rubber manufacturers under the stress of unreasonably high prices for crude rubber have come to fuller realization of the possibility of compounding with modern reclaims while retaining actual quality output in their manufactured product. The economic as well as technical advantage in this revision of practice have become widely known under circumstances that will be long remembered. The quotations given below are nominal.

## New York Quotations

August 25, 1925

### Auto Tire

Black	lb. \$0.10 @ \$0.11
Black, washed	lb. .12 @ .13
Black, selected tires	lb. .13 @ .13½
Dark gray	lb. .14½ @ .15
Light gray	lb. .16 @ .16½
White	lb. .19 @ .19½

### High Tensile Black

Super-reclaim, No. 1	lb. .27 @ .29
No. 2	lb. .17 @ .18

### Shoe

Unwashed	lb. .11 @ .11½
Washed	lb. .14 @ .14½

### Tube

No. 1	lb. .26 @ .27
No. 2	lb. .19 @ .19½

### Uncured Tire Friction

No. 1	lb. .60 @ .65
No. 2	lb. .45 @ .50

### Miscellaneous

High grade, red	lb. .17½ @ .18
Truck tire	lb. .11 @ .11½
Mechanical blends	lb. .08 @ .09

## The Market for Rubber Scrap

The event of the August market was the marked drop in price on all scrap grades except those classed as mechanicals. About the first of August the high levels prevailing for tires, \$65.00 to \$68.00 a ton, brought forth the accumulations from every quarter of remotest territory. The market ran wild because dealers were bidding it up among themselves and paying more than the reclaimers would pay. At this point the withdrawal of the ultimate scrap factors from the market caused a panic among the smaller dealers and prices dropped a third. Prices are now at reasonable levels. Reclaimers are not overstocked and are consuming their supplies rapidly under capacity operation.

Full knowledge by the trade of scrap stocks and the certainty of continued strong demand from reclaimers will probably result in moderate advances over present scrap price levels.

**BOOTS AND SHOES.** The first of the month found these comparatively uninteresting in price and demand. As the month progressed the price became easier.

**INNER TUBES.** These showed with tires the phenomenal rise following that of crude rubber early in the month and also figured in the sensational drop later. Tube scrap is now rather nominal in price and demand quieted.

**MIXED TIRES.** Since their decline from highest levels tires have

been moving in steady volume to reclaimers under conservative buying.

## Quotations for Carload Lots

August 25, 1925

### Boots and Shoes

Boots and shoes, black	lb. \$0.03 @ \$0.03½
Red and white	lb. .02 @ .03½
Trimmed arctics, black	lb. .02½ @ .02½
Untrimmed arctics	lb. .02 @ .02½
Tennis shoes and soles	lb. .01½ @ —

### Hard Rubber

No. 1 hard rubber	lb. .12 @ .14
Battery jars, black compound	lb. .02½ @ .02½
Red	lb. .07 @ .07½
Mixed tubes	lb. .07½ @ .08

### Inner Tubes

No. 1, floating	lb. .12 @ .13
No. 2, compounded	lb. .09 @ .09½
Red	lb. .07 @ .07½
Mixed tubes	lb. .07½ @ .08

### Mechanicals

Mixed black scrap	lb. .01½ @ .01½
Heels	lb. .01 @ .01½
Hose, air-brake	ton 30.00 @ 33.00
regular	ton 24.00 @ —
No. 1 red	lb. .03 @ .03½

No. 2 red	lb. .02½ @ .03
Red packing	lb. .01½ @ .02
White, druggists' sundries	lb. .06 @ .08
Mechanical	lb. .02½ @ .03½

### Tires

Pneumatic Standard—	
Mixed auto tires with beads	ton 30.00 @ 32.00
Beadless	ton 37.00 @ 39.00
White auto tires with beads	ton 60.00 @ 65.00
Beadless	ton 80.00 @ 85.00
Mixed auto peelings	ton 40.00 @ 45.00
Solid—	
Mixed motor truck, clean	ton 49.00 @ 52.00

## Crude Rubber Imports Six Months Ended June 30, 1925

From	Crude Rubber Pounds	Rubber Latex Pounds	Balata Pounds	Gutta Percha Pounds	Other Crude Scrap and Reclaimed Pounds
Belgium	411,548		14,991		224,371
France	1,860,297			182	424,657
Germany	631,552	11,180			478,619
Italy					260,262
Netherlands	855,310				909,883
United Kingdom	52,674,750	19,396	2,356	133,762	4,524,117
Canada	103,050				21,466
Costa Rica	3,268				25
Honduras	4,585				
Nicaragua	19,945				
Panama	49,280			5,680	3,756
Mexico					
Cuba					
Dom. Republic					
Other B. W. Indies			2,200		
Brazil	16,502,336		63,056		
Chile	68,542				
Colombia	262,929		95,970		
Ecuador	604,116				
British Guiana			5,500		
Dutch Guiana	25,910		34,310		
French Guiana			14,816		
Peru	294,381		38,709		
Unguay	171,101				
Venezuela	15,822		26,302		226
Brit. India	2,233,315				
Ceylon	31,777,428				
Strts. Settlements	240,424,872	514,373		600,625	662,545
Java and Madura	38,550,753			720,508	
Other Dutch E. Ind.	38,012,147	3,756,715			36,000
Hongkong	200				
Japan	559,600				
Philippines	105,726				
Australia	6,940				308
Egypt	2,464				
Other French Africa	44,116				
Liberia	83,545				
Total Quantity	426,357,828	4,301,664	303,890	1,455,077	7,566,238
Value	\$147,308,623	991,401	134,374	234,996	351,226
Long Tons	190,338	1,925			
				1924	1925
Total imports crude rubber; 6 months ending June 30, in long tons				162,174	192,263
Jelutong for the six months ending June 30, 1925:					
From					
Straits Settlements					7,157,041
Java and Madura					873,353
Total					8,030,394
Value					\$844,793
Gumule for the six months ending June 30, 1925:					
From Mexico					3,363,458
Value					\$607,849

## The Market for Chemicals and Compounding Ingredients

### New York

THE usual seasonal reduction of rubber goods output, particularly in tires and tubes, has not been marked this summer. In consequence the movement of compounding ingredients has been well maintained. The abnormally high prices commanded by crude rubber have stimulated manufacturers to revision of their rubber mixing and interested them anew in compounding possibilities and the technical value of ingredients and substitutes. Contracts and orders for fall delivery assure continuance of good business in materials.

**ACCELERATORS.** The use of accelerators in every grade of rubber goods from highest quality product to inexpensive competitive grades calls for a variety of accelerators of special characteristics. All types of accelerators have continued to move in undiminished volume owing to the sustained activity of the rubber industry during the summer. The resin accelerators are a comparatively new class which function to soften the batch for mixing and working, this effect terminating in the accelerated cure.

**BENZOL.** Following the advance announced some weeks ago the consuming demand has broadened and been well sustained. No increase of production has taken place. There is practically no surplus hence increased demand has caused production to be sold ahead.

**CARBON BLACK.** Standard grades are in steady demand owing to the maintenance of large manufacturing schedules in the tire

division. Prices remain low for standard rubber grades. It can not be determined what they will be for 1926 business until after the forthcoming decision of the Louisiana Gas Conservation Commission regulating gas consumption by the carbon black producers for the succeeding half year.

**CLAYS.** Producers of rubber compounding clays report the continuance of heavy volume of demand for this material by the rubber industry. Its value as a cheap reinforcing material is now well established in tire treads, soles, heels, mechanicals and wherever the finished product is required to resist wear.

**LITHARGE.** Routine consumption early in the month was succeeded by improved demand. About the middle of the month the price of powdered litharge in casks was advanced  $\frac{1}{2}$  cent a pound. Other grades remained unchanged.

**SOLVENT NAPHTHA.** Supplies are very limited. Production is sold out ahead and prices are very firm.

**SUBLIMED LEAD.** The output is moderate. The price has been increased  $\frac{1}{2}$  cent a pound owing to increased production cost by advance in pig metal.

**WHITING.** A larger volume than ever is being used in the rubber industry. Prices are very low.

**ZINC OXIDE.** This standard rubber ingredient is moving steadily. The price on 35 per cent leaded grade advanced  $\frac{1}{2}$  cent a pound. Other grades were unchanged.

\$0.03	@ \$0.03 1/2
.02	@ .03 1/2
.02 1/2	@ .02 1/2
.02	@ .02 1/2
.01 1/2	@ —
.12	@ .14
.02 1/2	@ .02 1/2
.12	@ .13
.09	@ .09 1/2
.07	@ .07 1/2
.07 1/2	@ .07 1/2
.01 1/2	@ .01 1/2
.01	@ .01 1/2
30.00	@ 33.00
24.00	@ —
.03	@ .03
.02 1/2	@ .02 1/2
.01 1/2	@ .02
.06	@ .08
.02 1/2	@ .03 1/2

30.00	@ 32.00
37.00	@ 39.00
60.00	@ 65.00
80.00	@ 85.00
40.00	@ 45.00
49.00	@ 52.00

ed June 30,

Other Crude	
Gutta Scrap and	
mercha Reclaimed	
ounds Pounds	
224,371	
182 424,657	
478,619	
260,262	
3,762 909,883	
4,524,117	
3,756	
21,460	
25	

### Accelerators, Inorganic

Lead, carbonate	lb. \$0.10 1/2
Lead, red	lb. .12 @
sublimed blue	lb. .10 @
sublimed white	lb. .10 @
Lime, R. M.	lb. .01 1/2 @
R. M. hydrated	ton @
superfine	lb. @
Litharge	lb. .11 1/2 @ .13
Magnesia, carbonate	lb. .06 1/2 @ .08 1/2
calcined, light (bbls.)	lb. .24 @ .40
calcined, ex. light (bbls.)	lb. .40 @
calcined, md. light (bbls.)	lb. .15 @
calcined, heavy (bbls.)	lb. .04 @ .06 1/2
magnesium, carbonate, light	lb. .07 @
Orange mineral A.A.A.	lb. .14 1/2 "
Rubber lead No. 4.	lb. .28 @

### Accelerators, Organic

A-7	lb. .75 @ .85
A-19	lb. .85 @ .95
Aldehyde ammonia	lb. .93 @
No. 101	lb. @
Anhydride formaldehyde aniline	lb. @
Anhydroformaldehyde-para-toluidine	lb. @
Aniline (factory)	lb. .17 @ .17 1/2
B. B.	lb. 1.07 @
Benzidine (base)	lb. .75 @ .78
Benzyl aniline	lb. @
Cryline	lb. @
paste	lb. @
powder	lb. @
D. P. G. salt	lb. .86 @
Diethyl amine	lb. @
Dimethyl amine	lb. @
Dimethylaniline	lb. .32 @ .34
Di-ortho-tolylguanidine	lb. @
Di-ortho-tolylthiourea	lb. @
Diphenyl guanidine	lb. .98 @
Ethyl aniline	lb. @
Ethylenediamine	lb. .65 @
Ethylidene aniline	lb. @
Ethyl-toluidine	lb. @
Excellerex	lb. .28 @ .35
Formaldehyde aniline	lb. .42 1/2 @
Hexamethylene tetramine	lb. .82 1/2 @
No. 102	lb. @
Lead oleate (factory)	lb. .18 @
Methylene aniline	lb. .32 @ .38
Methylenedianiline	lb. @
No. 999	lb. .17 @
No. 552 Piperidine piperidyl-dithiocarbamate	lb. @
Para-nitrosodimethylaniline	lb. .99 @
Paraphenylenediamine	lb. 1.25 @ 1.30
Quinonidine	lb. .40 @
Shawinigan paraaldehyde	lb. @
Super-sulphur, No. 1.	lb. .50 @ .55
No. 2.	lb. .20 @ .30
Tensilac No. 41	lb. @

### New York Quotations

August 25, 1925

#### Accelerators, Organic—Continued

Thiocarbanilide	lb. \$0.25 @ .32
Trimene	lb. @
Trimene base	lb. @
Triphenylguanidine	lb. .73 @
Tuads	lb. 5.00 @
Vulcone	lb. @
Zimate	lb. 5.00 @

#### Acids

Acetic 28% (bbls.)	100 lb. 3.00 @ 3.25
glacial (carboys)	100 lb. 11.07 @ 11.52
Cresylic (97% straw color) gal.	.59 @ .62
(95% dark) gal.	.57 @ .60
Sulphuric, 66° (carboys)	lb. .08 @ .09

#### Alkalies

Caustic soda	100 lbs. 3.10 @ 3.91
flake, 76% (factory)	100 lbs. 4.16 @ 4.31
solid, 76% (factory)	100 lbs. 3.76 @ 3.91

#### Colors

BLACK	
Bone	lb. .05 1/2 @ .11
Carbon:	
A. & W. nonfi	lb. .40 @ .12
Aerflated arrow	lb. .07 1/2 @ .12
Compressed factory	lb. .07 1/2 @ .08
Uncompressed factory	lb. .07 @ .11
Micronex	lb. .08 @ .12
Drop	lb. .06 @ .10
Lampblack	lb. .10 @ .14
Shawinigan	lb. @
Thermatomic carbon	lb. .04 @

#### BLUE

A. & W. blue	lb. 2.00 @ 4.00
Cobalt	lb. .20 @ .25
Prussian	lb. .34 @ .35
Ultramarine	lb. .08 @ .35

#### BROWN

Iron oxide	lb. .04 @ .05 1/2
Sienna, Italian	lb. .06 1/2 @ .07 1/2
Umber, Turkey	lb. .04 @ .06

#### GREEN

A. & W. green	lb. 2.80 @ 3.00
Chrome, light	lb. .28 @ .30
medium	lb. .30 @ .32
dark	lb. .31 @ .34
commercial	lb. .09 @ .10 1/2
Oxide of chromium	lb. .33 @ .38
T. K.	lb. .35 @ .40

#### RED

Antimony, sulph. golden	lb. \$0.26 @ .21
T. K.	lb. .18 @ .21
R.M.P. No. 7	lb. .20 @ .21
golden 15/17% G. E.	lb. .22 @ .25
Antimony, sulph. crimson	lb. .27 @ .43
T. K.	lb. .40 @ .43
T. K. S/F.	lb. .48 @ .50
crimson, 15/17% G. E.	lb. .42 @ .45
crimson, R.M.P. No. 3	lb. .48 @ .48
Z-2	lb. .18 @ .25

#### Antimony

Arsenic, red-sulphide	lb. 1.50 @ 3.00
A. & W. red (4 shades)	lb. 2.00 @ 3.00
purple	lb. .50 @ .50

#### Iron oxides

bright red pure domestic	lb. .10 @ .12
bright red reduced English	lb. .11 @ .14
bright red reduced domestic	lb. .07 1/2 @ .11
bright red reduced domestic	lb. .07 @ .11
Indian (maroon), red pure	lb. .07 @ .11
Indian (maroon), red pure English	lb. .09 1/2 @ .11
Indian (maroon), red reduced English	lb. .07 1/2 @ .09
Indian (maroon), red reduced domestic	lb. .07 @ .09
Oximony	lb. .13 1/2 @ .04
Spanish red oxide	lb. .02 1/2 @ .04
Venetian reds	lb. .02 1/2 @ .03 1/2
Yellow oxide pure	lb. .08 @ .09
Paro toner	lb. .90 @ 1.00
Toluidine toner	lb. 1.95 @ 2.10
Vermilion, English quicksilver	lb. 1.40 @ 1.60

#### WHITE

Alcolith	lb. .05 1/2 @ .06 1/2
Albalith	lb. @
Aluminum bronze	lb. .06 @ .07 1/2
Lithone	lb. .05 1/2 @ .06 1/2
Azolith	lb. .05 1/2 @ .06 1/2
Graselli	lb. .05 1/2 @ .06 1/2
Imported prime	lb. .05 1/2 @ .06 1/2
Sterling	lb. .05 1/2 @ .06 1/2
T. O. pigment	lb. .14 @ .16
Zinc oxide	lb. .05 1/2 @ .06 1/2
AAA (lead free)	lb. .07 1/2 @ .07 1/2
Azo (factory)	lb. .07 1/2 @ .07 1/2
ZZZ (lead free)	lb. .07 1/2 @ .07 1/2
ZZ (5% leaded)	lb. .06 1/2 @ .07 1/2
Z (8% leaded)	lb. .06 1/2 @ .07 1/2

## Colors

## WHITE—Continued

French process, Florence Brand	
Green seal	lb. \$0.1075 @ \$0.115
Red seal	lb. .0975 @ .105
U. S. P.	lb. .145 @ .165
White seal	lb. .115 @ .125
Horse Head brands	
Selected	lb. .08 @ .085
Special	lb. .08 @ .085
XX red	lb. .075 @ .075
Leaded brands	
Lehigh	lb. .075 @ .075
Standard	lb. .075 @ .075
Sterling	lb. .075 @ .075
Superior	lb. .075 @ .075
Palmerton process	
Kadiox, black	lb. .105 @ .115
blue	lb. .0975 @ .105
red	lb. .0875 @ .0975
Snow white	lb. @

## YELLOW

A. & W. yellow	lb. 2.50 @ 4.00
Arsenic	lb. .70 @ .75
Chrome	lb. .175 @ .185
Ochre, domestic	lb. .02 @ .025
imported	lb. .03 @ .035
Compounding Ingredients	
Aluminum flake (sacks c.l.)	ton 21.85 @
(sacks I.c.l.)	ton 24.50 @
Aluminum silicate	ton 25.00 @
Ammonia carbonate	lb. .135 @ .15
Areo-sole	ton 10.00 @ 14.00
Asbestine	ton 13.50 @ 14.50
Barium, carbonate (bbl.)	ton 54.00 @ 56.00
dust	lb. .05 @ .06
Barytes, imported	ton 28.00 @ 30.00
water ground and floated	ton 23.00 @ 26.00
Basofor	lb. .045 @ .05
Blanc fixe, dry	ton 75.00 @ 85.00
pulp	ton 55.00 @ 60.00
Carrara filler	lb. .02 @
Chalk, precip. extra light	lb. @
heavy (f.o.b. factory)	lb. @
Clay, Dixie	ton 20.00 @ 35.00
Blue ribbon (c. l. facty.)	ton 14.00 @
Blue Ridge, dark	ton 9.00 @
light	ton 12.00 @
Catalpa (factory)	ton 35.00 @ 38.00
China	lb. .015 @ .025
Langford	ton 12.00 @
Cotton flock, black	lb. .12 @ .13
light-colored	lb. .12 @ .13
white	lb. .15 @ .16
Cotton linters clean mill run	lb. .05 @
Glue, high grade	lb. .21 @ .29
medium	lb. .18 @ .24
low grade	lb. .14 @ .17
Graphite, flake	lb. .065 @ .12
Lime	ton 30.00 @ 37.50
Mica, water ground	lb. .0075 @ .01
Pumice stone, powd.	lb. .03 @ .05
Roten stone (bbls.)	lb. .025 @ .045
Soap bark, cut	lb. .105 @ .115
Soapstone	ton 15.00 @ 22.00
Sodium bicarb. (bbls.)	100 lbs. 2.00 @
Starch, powd. corn	
Buffalo	(bbls.) 100 lbs. 3.77 @ 4.04
(bags)	100 lbs. 3.77 @
Talc, French	lb. .015 @ .02
Italian	lb. .02 @ .035
Terra blanche	ton 20.00 @ 25.00

## Chemical Market—Continued

## New York Quotations

August 25, 1925

## Compounding Ingredients—Continued

Whiting, domestic No. 33	ton \$10.00 @
chalk, L. H. B.	ton 15.00 @ 25.00
commercial (factory)	100 lbs. .90 @ 1.00
English, cliffstone	ton 100 lbs. 1.50 @
gilders (bolted)	100 lbs. 1.25 @ 1.35
Nelco	ton 12.00 @ 22.00
Paris White	100 lbs. 1.60 @ 2.00
Perfection	ton 13.00 @ 20.00
Quaker	ton 13.00 @ 15.00
Snow-white, E. L. B.	ton 14.00 @ 25.00
Sussex	ton 8.00 @ 10.00
Witco (c.l.)	ton 12.00 @
Wood pulp, XXX (factory)	ton 35.00 @
X (factory)	ton 25.00 @

## Mineral Rubber

Genasco (factory)	ton @
Gilsonite	ton @
Granulated M. R.	ton 35.00 @ 45.00
Hydrocarbon, hard	ton 29.00 @ 35.00
Hydrocarbon, soft	ton 29.00 @ 35.00
Mineral flour	ton @
Ohmiae Kapak, K.R.	ton @
R.4.	ton @
320/340 m. p. hydrocarbon	ton 47.00 @ 52.00
300/310 m. p. hydrocarbon	ton 42.00 @ 47.00
Paradus	ton 70.00 @ 75.00
Pioneer, M. R., solid (factory)	ton @
M. R. granular	ton @
Robertson, solid (factory)	ton 35.00 @ 75.00
M. R. gran. (factory)	ton 42.00 @ 80.00
Rubrax (factory)	ton @

## Resins and Pitches

Pitch, Burgundy	lb. .06 @
coal tar	lb. .016 @
Fluxed hardwood	lb. .02 @ .04
pine tar	lb. .03 @
ponto	lb. .07 @
Rosin, K. (bbl.)	280 lbs. 11.60 @
strained (bbl.)	280 lbs. 11.50 @
Shellac, fine orange	lb. .52 @ .53
Tar, pine, retort	bbi. 15.00 @ 16.00
kiln	bbi. 15.00 @ 16.50

## Oils (Softeners)

Avilas compound	lb. .13 @
Castor, No. 1, U. S. P.	lb. .165 @
No. 3, U. S. P.	lb. .16 @
Corn, crude (bbls.)	lb. .12 @
Cotton, Summer yellow	lb. .11 @
Cyclene	gal. .225 @ .36
Glycerine	lb. .20 @ .205
Limed, raw	gal. 1.11 @
Liquid rubber	lb. .11 @
Moldrite	lb. .05 @ .06
Palm lago	lb. .09 @
Falm, niger	lb. .085 @
Parra M. R. flux	lb. .06 @ .07
Peanut, crude	lb. .105 @
refined	lb. .14 @

## Oils (Softeners)—Continued

Petrolatum, standard	lb. \$0.06 @ \$0.08
Petrolatum, sticky	lb. .08 @ .10
Pine, steam distilled	gal. .60 @ .63
Rapeseed, refined	gal. 1.05 @
blown	gal. 1.15 @
Rosin	gal. .60 @ .70
Soya bean	lb. @
Tar	gal. .28 @ .35
Woburn	lb. .05 @

## Solvents

Acetone	(98.99% 6.62 lbs gal.) @
Benzol	(90%, 7.21 lbs. gal.) pure @
Carbon bisulphide	(10.81 lbs. gal.) 99.9% pure (drums) @
tetrachloride	(13.28 lbs. gal.) 99.7% pure (drums) @
Naphtha	68° Bé., 122°, 324° gal. 20 @
76° Bé., 114°, 314° gal. 21 @	
71° Bé., 112°, 304° gal. 22 @	
Turpentine, spirits	wood, steam distilled gal. 1.03 @
Gasoline	No. 303
Tankcars	Drums, c. l. @
Drums, I. c. l. @	
Motor gas (steel bbls.)	.27 @
Naphtha	.20 @
68° Bé., 122°, 324° gal. 21 @	
76° Bé., 114°, 314° gal. 22 @	
71° Bé., 112°, 304° gal. 23 @	
Gasoline	No. 303
Tankcars	Drums, c. l. @
Drums, I. c. l. @	
Motor gas (steel bbls.)	.20 @
Naphtha	.21 @
68° Bé., 122°, 324° gal. 22 @	
76° Bé., 114°, 314° gal. 23 @	
71° Bé., 112°, 304° gal. 24 @	
Turpentine, spirits	wood, steam distilled gal. 1.03 @

## Substitutes

Black	lb. .085 @ .15
Brown T. K.	lb. .105 @ .14
White T. K.	lb. .135 @ .165
Brown factice	lb. .095 @ .16
White factice	lb. .095 @ .17

## Vulcanizing Ingredients

Sulphur chloride (drums)	lb. .045 @ .05
Sulphur, soft rubber, 100% pure (c.l.)	100 lbs. 2.35 @ 2.60
Sulphur, Brooklyn brands	100 lbs. 2.65 @ 2.90
Refined velvet (bbls.)	100 lbs. @
(bags)	100 lbs. @
Superfine flour (bbls.)	100 lbs. @
(bags)	100 lbs. @
Sulphur rubber makers	lb. .0234 @ .0334
Tire brand	100 lbs. 1.75 @
Tube brand	100 lbs. 2.00 @

(See also Colors—Antimony)

## Waxes

Wax, beeswax, white, com.	lb. .55 @ .65
carnauba	lb. .38 @ .40
ceresine, white	lb. .10 @ .11
montan	lb. .06 @ .065
ozokerite, black	lb. .24 @ .25
green	lb. .26 @ .30

Paraffin	123/124 white crude scale
	.055 @ .0534
124/126 white crude scale	.0534 @ .052
120/122 fully refined	.06 @ .0634
125/127 fully refined	.065 @ .0634

## LATEX COAGULATING AND PRESERVING CHEMICALS

Acetic Acid is the most important industrial chemical used in the plantation industry. Large quantities are required for the coagulation of rubber latex. It is supplied in demijohns of 20 kilos net weight. The province of the East Coast of Sumatra imported 332 tons in 1922, 270 in 1923, and 497 in 1924, chiefly from Germany and the Netherlands. Lately, however, its demand is reported to have decreased, owing to the development of the latex spraying method of preparing rubber; also to the competition of formic acid which is cheaper and claimed by its manufacturers to be fully as efficient for latex coagulation.

Liquid ammonia is used by rubber estates to prevent latex from coagulating. This chemical comes almost entirely from Germany, but it is understood that an American rubber company has imported it from the United States. One plantation company alone is said to use 18,000 kilos monthly.

Formalin is also used as an anti-coagulant, but its consumption is very limited, about 7,000 kilos of 40 per cent formaldehyde per year.

Sodium bisulphite is used extensively for bleaching crêpe rubber and sheet rubber on the rubber estates. It comes from Germany and England and is usually supplied in drums of 50 kilos.

Alum is used almost exclusively by natives in Sumatra for coagulating latex. The increasing production of native grown rubber has caused an increase in the imports of alum from 17,052 kilos in 1921 to 250,704 in 1924.—Commerce Reports.

## MINERAL FLOUR

Mineral flour, a clay mined at Okahumpka, Florida, is now furnished in the sprayed form (granular aggregates) and equipment is being installed for the production of the pulverized form. Mineral flour gives remarkable reinforcing qualities to rubber, and has been used in first quality tire treads of both standard and balloon types. It does not, however, give as steep a stress strain curve as the Georgia and Carolina clays. Where good aging, high tensile strength and high abrasion resistance are wanted at minimum cost, mineral flour should be considered.

.06 @ \$0.08  
.08 @ .10  
.60 @ .63  
1.05 @ @  
1.15 @ .70  
.60 @ .35  
.28 @ .35  
.05 @ @  
@  
.29 @ .08  
.06 @ .07  
.07 @ .08

.21 @  
.24 @  
.27 @  
.20 @  
.20 @  
.21 @  
.22 @  
.03 @  
.90 @

.08 1/2 @ .15  
.10 1/2 @ .14  
.13 1/2 @ .16 1/2  
.09 1/2 @ .16  
.09 1/2 @ .17

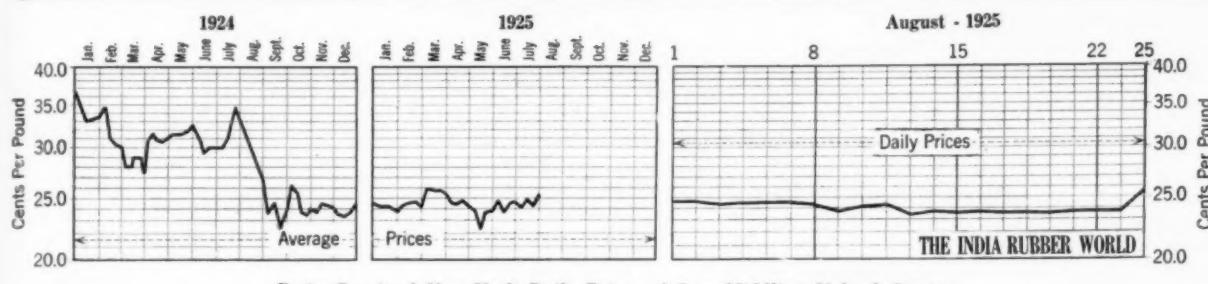
.04 1/2 @ .05

.33 @ 2.60  
.65 @ 2.90

@  
@  
@  
0.23 @ .03 1/2  
75 @ .25  
00 @

.55 @ .65  
.38 @ .40  
.10 @ .11  
.06 @ .06 1/2  
24 @ .25  
26 @ .30

.05 1/2 @ .05 1/2  
.05 1/2 @ .05 1/2  
.06 @ .06 1/2  
.06 1/2 @ .06 3/4



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

## The Market for Cotton and Other Fabrics

New York

**S**pot middlings ranged from 24.65 cents August 1, to 23.56 cents August 24. This decline of about one cent was due to rains in Texas and reports of improved crop conditions. The government crop report of August 1 showed a condition of 65.6 pointing to a yield of only 13,566,000 bales or 22,000 bales less than the July 15 forecast. Prospects of the largest cotton crop since 1914 were renewed when the Department of Agriculture announced the condition of this year's crop on August 16 as 62 per cent of normal and upon this basis forecast an ultimate yield of 13,990,000 equivalent 500 pound bales, an improvement between August 1 and August 16 of 424,000 bales.

**EGYPTIAN COTTON.** Business in staples continues slow owing to the general belief in a much lower basis later on. There is some buying by spinners manufacturing specialty yarns and many mills are picking up lots here and there in order to continue running their plants. There is no inclination evident to cover beyond the requirements of business actually in sight. This is due, no doubt, to the increase in acreage planted to staples and the excellent condition reports coming from the staple areas the world over.

On August 1, Egyptian cotton was quoted c.i.f. Boston for November-December shipment as follows: Medium Sakellaridis 51 1/4 cents; Medium Uppers 37 cents. On August 22 the same position was quoted as follows: Medium Sakellaridis 48 1/8 cents; Medium Uppers 33 1/2 cents.

### Cotton Fabrics

**DUCKS, DRILLS AND OSNABURGS.** The market activity of these goods in August has been well sustained and the volume of trade is increasing notably for nearby and future shipments. It is noted

also that many classes of fabrics coming under the head of specialties are in very limited supply for spot delivery at the present moment. Consumers and jobbers have further reduced their reserves of cotton goods owing to curtailing replacement orders in the expectation of a lower market. Replacement orders are increasing, however, and a growing volume of business resulting. This condition is expected to continue for the next three months. In fact inclination is broadening among consumers to bulk their requirements for the remainder of this year at today's range of prices. The increasing demand for early delivery of goods, which are priced at about cost or less, will hold prices firm and rising.

**RAINFOAT FABRICS.** The trade in raincoat fabrics has had an unexpected revival and manufacturers are receiving more orders than they can execute. These coats are all in high color rubber surface and have made a decided hit wherever offered for sale.

**HEETINGS.** Prices have held fairly firm. Same fabrics are rather difficult to obtain probably due to the good demand and curtailed production. During the third week of August there was a pause in buying awaiting the government cotton crop condition report.

**TIRE FABRICS.** The market situation shows that a lot of fabric has passed into consumption and the demand is still fair. Buying, however, has been more or less from hand to mouth for the past thirty days and the volume of new business placed has not been sufficient to create a really good market. Prices are still dragging on the bottom although within a few days they have shown a tendency to stiffen but not more than one cent a pound.

Although the consumption of tire fabrics is running into greater weight than ever before it is evident that fabric production capacity is still greater and results in undue competition.

### Drills

38-inch 2.00-yard.....	yard	\$0.20 1/4 @
40-inch 3.47-yard.....		.12 1/4 @
52-inch 1.90-yard.....		.22 1/4 @
60-inch 1.52-yard.....		.27 1/4 @

### Duck

38-inch 2.00-yard.....	yard	.22 @
40-inch 1.47-yard.....		.29 1/2 @
72-inch 16.60-ounce.....		.50 @
72-inch 17.21-ounce.....		.52 1/2 @

### MECHANICAL

Hose and belting.....	pound	.41 @
Specials .....		.45 @

### TENNIS

52-inch 1.35 yard.....	yard	.33 1/2 @
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### Hollands

DEAD FINISH		
Standard, 37-inch .....	yard	.19 1/2 @
42-inch .....		.23 1/2 @

### RED SEAL

36-inch .....		.18 @
40-inch .....		.19 @
50-inch .....		.30 @

### FLAT FINISH

Imperial, 36-inch.....	yard	.15 1/2 @
40-inch .....		.17 1/2 @

### New York Quotations

August 25, 1925

#### GOLD SEAL

40-inch .....		\$0.29 @
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#### Osnaburgs

40-inch 2.35-yard .....	yard	.18 1/2 @
40-inch 2.48-yard .....		.17 1/2 @
40-inch 3.00-yard .....		.14 1/2 @
37-inch 2.42-yard .....		.17 1/4 @

#### Raincoat Fabrics

##### COTTON

Bombazine 64 x 60 .....	yard	.13 1/2 @
Bombazine 60 x 48 .....		.12 1/2 @
Plaids 60 x 48 .....		.13 @
Plaids 56 x 44 .....		.12 1/2 @
Surface prints 60 x 48 .....		.12 1/2 @
Surface prints 64 x 60 .....		.13 1/2 @

#### Sheetings, 40-inch

40 x 48, 2.50-yard .....	yard	.15 1/2 @
48 x 48, 2.85-yard .....		.13 @
64 x 68, 3.15-yard .....		.74 @
56 x 60, 3.60-yard .....		.11 1/2 @
48 x 44, 3.75-yard .....		.10 1/2 @

#### Sheetings, 36-inch

48 x 48, 5.00-yard .....	yard	\$0.08 1/2 @
40 x 40, 6.15-yard .....		.07 @

#### Tire Fabrics

##### SQUARE WOVEN 17 1/4-ounce

Egyptian, karded.....	pound	.58 @ .60
Peeler, karded .....		.46 @ .49

##### CORD 23/3/3

Egyptian, combed.....	pound	.75 @ .76
Egyptian, karded .....		.62 @ .64
Peeler, combed, 1 1/2-in.....		.68 @ .70
Peeler, karded, 1 1/2-in.....		.51 @ .53

##### CORD 13/3/3

Peeler, karded.....	pound	.47 @ .48
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##### LENO BREAKER

8-oz. Peeler, karded.....	pound	.48 @ .50
10-oz. Peeler, karded.....		.48 @ .50

##### CHAFFER

8.25-oz. Peeler, karded .....	pound	.60 @
9.5-oz. Peeler, karded .....		.59 @
12-oz. Peeler, karded .....		.48 @ .52
14-oz. Peeler, karded .....		.48 @ .50

## The Cotton Outlook

### United States Crop Placed at 13,566,000 Bales

THE Crop Reporting Board of the United States Department of Agriculture estimates that the condition of the cotton crop on August 1 was 65.6 per cent of normal, as compared with 70.4 per cent on July 16, 75.9 per cent on July 2, and 67.4 per cent on August 1, 1924.

Total production, it is estimated, will be about 13,566,000 500-pound bales, as compared with an indicated yield of 13,588,000 bales on July 16, 14,339,000 bales on July 2, and an actual yield of 13,627,936 bales last year and 10,139,671 bales in 1923.

The condition of 65.6 per cent indicates an average yield per acre of 139.8 pounds, as compared with 157.4 pounds in 1924 and a ten-year average of 154 pounds.

Ginnings of cotton of this year's crop prior to August 1 are given by the Census Bureau as totaling 159,373 running bales, counting round as half bales, compared with 21,795 bales to that date in 1924 and 64,381 bales in 1923.

Further declines due to drouth in portions of Texas and Oklahoma have been about offset by a lessening of the weevil menace in the Southeast and by the enhanced prospect in Arkansas, Tennessee and Missouri. Army worms, rust, lice and wilt are reported from scattered localities in Louisiana, Mississippi and adjoining states. Lice have practically disappeared in Texas.

Boll weevils are more numerous than they were last year on August 1 in all states east of the Mississippi except Georgia and Tennessee, and less numerous in all states west of the river. In Louisiana they are much more numerous.

Reports indicate that the crop is a week earlier than last year in the Southeast and from ten days to two weeks earlier in the rest of the belt.

Private estimates of the coming crop are somewhat below the Government forecast, ranging from 13,100,000 to 13,300,000 bales.

### Carry-Over and Prospects

Over eight and one-quarter million bales of cotton were exported from the United States during the cotton year ended July 31, the largest outflow since the season of 1914-15, when, as during the two preceding seasons, world consumption of American cotton exceeded fourteen and one-half million bales. These 1924-25 foreign shipments plus home consumption amounting to some six million bales demonstrate the ability of the world to absorb American crops in excess of fourteen million bales as they do the ability of the South to resume its position as the "greater arbiter of the world's cotton supply."

Estimates of the world's carry-over of American cotton at the end of the cotton year vary greatly as usual, for example those of Secretary Hester of the New Orleans Cotton Exchange being 2,880,000 bales against 2,319,000 bales last year, as compared with those of A. H. Garside of the Merchants National Bank of Boston which are 3,388,000 bales against 2,754,000 bales last year. But however the figures may differ, there seems to be a consensus of opinion that the abnormally low carry-over of last year has been increased only some five or six hundred thousand bales, and that with American consumption again increasing, foreign conditions more nearly normal and average values no higher than during the past year, there will be need of an American crop averaging well in excess of that of last season. A new crop under 13,000,000 bales would be less than the world would require for actual consumption.

Despite the steadily increasing efforts of foreign spinners to stimulate the growth of cotton abroad, they continue to give the preference to American cotton when available in adequate quantities and at reasonable prices. This encourages the belief that

a demand can be found for the largest crops that the South can raise at fair prices to the spinner.

### Cotton Staple Standards Amended

Following a conference between delegates representing the leading cotton and manufacturers' associations and officials of the Bureau of Agricultural Economics, the Department of Agriculture has promulgated an order, effective August 1, amending the regulations covering the issuance of cotton standards for length. The new standards include types for lengths varying by 1/32 of an inch from 1 1/32 to 1 11/32 inches in the case of upland cotton and for 1 9/16 inches in the case of American Egyptian cotton. No attempt is yet made to provide standards for character as originally reported, although it appears to be the hope of Department officials that types for lengths eventually will be accepted as types for character as well. Until such time as character can be clearly defined and identified, however, it seems impossible to believe that standards of length varying only 1/32 of an inch can be accurately selected and commercially utilized.

### Indian Efforts to Grow Better Cotton

Regulations covering the operation of gins and compresses in India, effective August 1, represent an important step in the direction of improved culture and increased staple length. It is hoped that the concerted effort being made to grow better staple grades and the experiments with American types will result within a few years in the production of 6,000,000 bales of cotton, of which 2,000,000 bales will have a staple of 1 1/16 inches in length, as against the present production of 5,000,000 bales, not quite 500,000 bales of which come under the higher class.

The new gin and compress regulations are due to the efforts of the British Cotton Growing Association, probably because Lancashire mills have found Indian cotton unsuitable for their use.

India is the second largest cotton producing country, next to the United States. At one time the quality of the cotton raised was very high, but it has deteriorated through lax methods and drastic measures are being applied to improve it. The length of staple is now variable, ranging from 3/8 of an inch to 1 1/8 inches.

### Rubber Prices Affect Cotton Goods Trade

Although rubber goods production, especially tires, continues at high levels, there has been a slackening in the demand for tire yarn and cotton fabrics, especially with regard to future contracts. The rise in crude rubber costs is given as one reason for this. Many of the smaller companies have had to tie up the greater part of their capital in rubber, and consequently have not been able to purchase their normal requirements of fabric for future operations.

Where cotton formerly represented the bulk of the cost of raw materials entering into the manufacture of a tire, the situation now is reversed. While there has been a considerable drop in the rubber market recently, the commodity is still high enough to seriously affect the operations of tire manufacturers. However, to offset the possibility of losses due to shrinkage of crude rubber inventories as in 1920, far-sighted companies are setting aside reserves from earnings to take care of such a contingency.

DURING THE FIRST HALF OF 1925 AUSTRALIA'S IMPORTATIONS OF American-made solid tires have continued to increase rapidly, the value for the period being \$219,177, as compared with \$125,242, the total for the entire year 1922. The purchase in May, 1925, reached a value of \$55,626, one of the highest figures for the year.

## Metal Market Review

## New York

Throughout August the metal markets in general were active, with prices higher. Conditions in both the copper and zinc industries showed improvement, while the demand for lead continued heavy. Steel ingot production during August showed a considerable gain over that of July.

**ALUMINUM.** Virgin metal, 98 to 99 per cent pure, is quoted at 27 to 28 cents, delivered.

**ANTIMONY.** Although spot Chinese metal continues scarce, the position became easier during the last of August, with metal available at 17½ cents.

**COPPER.** Recently published statistics show that the surplus of refined copper in the hands of American producers is the smallest since the war, amounting on August 1 to only 88,088 tons, as against 91,326 tons a month earlier. July consumption was greater than production, while, according to the American Bureau of Metal Statistics, the world output of copper during that month was 129,300 short tons, as against 129,700 tons in June and 139,600 tons in March, the peak of the year.

**LEAD.** The situation is becoming confused, and according to the *Iron Age*, a true appraisal of quotations is almost impossible, while consumption continues so great. The demand is attributed to a desire by consumers to cover future needs or to actual present consumption requirements or to both.

**STEEL.** There has been a slow but sure improvement in the steel industry for several weeks past, the mills at the present time turning out steel at a rate some 6 per cent greater than the average since the armistice. The *Iron Trade Review* says: "A moderate expansion of incoming tonnage already experienced by producers, with improving prospects for future months, sums up the present iron and steel situation. Consumption, without any striking examples, is perceptibly on the up-grade."

**TIN.** The market continues active, with consumers the principal buyers. It is said that the feature of the market has been the fact that buying has continued in spite of the probability that consumers are well covered.

**ZINC.** Prices advanced during the last part of August, rising 10 points in one week. According to the American Zinc Institute, the industry is at present operating at 56½ per cent of capacity. Stocks declined in July to 20,771 tons at the close of the month, while shipments for the first seven months of the year totaled 341,212 tons.

## Basic Metals

August 25, 1925

	Cents per pound
Aluminum, virgin, 98@99 per cent.	27.00 @ 28.00
Antimony	17.50 @ 18.00
Copper—Lake, spot	14.875 @ 15.00
Electrolytic, spot	14.750 @
Castings, refinery	14.00 @
Lead, spot, New York	10.00 @ 10.50
Lead, spot, East St. Louis	10.00 @ 10.25
Tin, spot	58.00 @
Zinc, spot, New York	8.00 @
Zinc, spot, East St. Louis	7.65 @

## Steel Wire

BASE PRICE\* ON NO. 9 GAGE AND COARSER

Cents per pound

	Cents per pound
Bright basic	4.25 @
Annealed soft	4.50 @
Galvanized annealed	5.15 @
Coppered basic	5.15 @
Tinned soft Bessemer	6.15 @

\* Regular extras for lighter gage.

## Copper Wire

BASE PRICE F. O. B. FACTORY.

Cents per pound

	Cents per pound
Bare copper wire	17.00 @
No. 6 B. & S. gage	17.00 @
No. 8 B. & S. gage	17.00 @
No. 14 B. & S. gage	18.00 @

## British Malaya

## Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency states that the rubber exported from British Malaya in the month of July totalled 24,809 tons. The amount of rubber imported was 16,192 tons of which 13,511 tons were declared as wet rubber. The following are comparative statistics:

	1924		1925	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	23,844	8,867	19,183	10,132
February	19,395	7,440	21,622	10,071
March	22,294	8,269	26,836	13,399
April	20,551	7,909	22,414	11,750
May	19,674	7,259	26,667	12,979
June	18,084	7,435	27,894	14,706
July	21,670	9,777	24,809	16,192
Totals	145,512	56,956	169,425	89,229

## Distribution

The following is a comparative return of distribution of shipments during the months of June and July, 1925:

Destination	June, 1925 Tons	July, 1925 Tons
United Kingdom	3,044	3,082
United States of America	21,605	18,033
Continent of Europe	2,157	2,650
British Possessions	504	160
Japan	577	833
Other Foreign Countries	7	51
Totals	27,894	24,809

## Plantation Rubber Exports from Dutch East Indies

## Java and Madura

To—	March		Three Months Ended March	
	1924 Kilos	1925 Kilos	1924 Kilos	1925 Kilos
Holland	160,000	136,000	629,000	424,000
Great Britain	672,000	811,000	1,763,000	1,626,000
Germany	35,000	89,000	130,000	336,000
Belgium		34,000		53,000
Italy	26,000	61,000	73,000	180,000
Sweden				3,000
United States	2,221,000	3,079,000	6,280,000	7,574,000
Singapore	279,000	124,000	694,000	392,000
Japan	75,000	12,000	383,000	24,000
Australia	18,000	10,000	67,000	17,000
Other countries	13,000	3,000	13,000	3,000
Totals	3,499,000	4,359,000	10,032,000	10,632,000

Ports of Origin:	1924	1925	1924	1925
	Kilos	Kilos	Kilos	Kilos
Tandjung-Priok	1,281,000	1,621,000	3,786,000	4,201,000
Cheribon	19,000	4,000	19,000	22,000
Samarang	246,000	257,000	632,000	849,000
Sourabaya	1,418,000	1,785,000	4,320,000	4,414,000
Pasuruan	154,000	138,000	347,000	264,000
Probolinggo	79,000	99,000	301,000	258,000
Panarukan	289,000	512,000	404,000	700,000
Banjuwangi	19,000	86,000	196,000	264,000
Tjilatjap	151,000	155,000	366,000	328,000

To—	Belawan		Three Months Ended March	
	1924	1925	1924	1925
Holland	168,000	211,000	452,000	456,000
Great Britain	306,000	951,000	1,091,000	2,595,000
Germany	30,000	56,000	30,000	167,000
France	14,000	21,000	20,000	43,000
Belgium		55,000	36,000	103,000
Italy	32,000		32,000	
United States	2,114,000	1,650,000	7,406,000	5,242,000
British South Africa		14,000		14,000
Penang	72,000	138,000	249,000	367,000
Singapore	67,000	92,000	262,000	211,000
Hongkong	10,000		31,000	
Australia		3,000	2,000	6,000
Other countries			1,000	1,000
Totals	2,813,000	3,191,000	9,618,000	9,205,000

DRUGGISTS' RUBBER SUNDRIES WERE IMPORTED INTO THE UNITED States during the first six months of 1925 to the amount of 46,265 pounds, value \$81,186. Of this total the United Kingdom furnished 23,494 pounds, value \$68,069; and Canada 13,400 pounds, value \$6,580. Other contributing countries included Germany, Belgium, Japan, and France.

## Exports of India Rubber Manufactures from the

EXPORTED TO	Belting Value	Hose Value	Packing Value	Thread Value	Boots		Shoes		Canvas Shoes with Rubber Soles		Soles and Heels Value	Water- proofed Auto Cloth and Rubberized Fabrics Value	
					Pairs	Value	Pairs	Value	Pairs	Value			
Austria	\$5,360	\$716	\$1,131		96	\$341			2,186	\$1,813		\$225	
Belgium			93									2,988	
Bulgaria			25									444	
Czechoslovakia			1,087	202	983		310	1,085	480	\$96	10,440	6,597	
Denmark												60	
Estonia													
Finland			4,525	16	110							123	
France			3,212	149	1,492	\$37,496	180	683					
Germany							75	2,600	180	475	13,011	8,360	
Greece							112						
Hungary													
Iceland & Faroe Islands			224		44		1,857	3,704	1,600	3,067	1,636	1,286	
Italy							11,589	615	1,867	1,836	2,010	50	
Latvia			1,035									1,246	
Malta, Gozo and Cyprus Islands													
Netherlands			101	427	709		36	84			738	821	
Norway			3,387	1,100			289	1,023	1,164	1,339	8,732	4,693	
Poland and Danzig									480	96			
Portugal												54	
Romania													
Russia in Europe			210	76									
Spain			338	511			2,885	309	802			376	
Sweden			7,866	802			2,493	6,675	1,085	1,634		2,821	
Switzerland			306	415			6	24	24	21		4,544	
United Kingdom			13,273	27,870	2,179	\$4,002	32,463	69,254	23,749	16,534	10,385	7,248	
Irish Free State									840	1,338		4,567	
Yugoslavia, Albania, etc.													
<b>TOTALS, EUROPE</b>	<b>\$40,739</b>	<b>\$32,728</b>	<b>\$6,724</b>	<b>\$88,572</b>	<b>38,765</b>	<b>\$86,107</b>	<b>44,269</b>	<b>\$34,495</b>	<b>37,992</b>	<b>\$25,742</b>	<b>\$14,600</b>	<b>\$28,029</b>	
<b>NORTH AMERICA</b>													
Canada	\$11,888	\$12,866	\$7,127	\$4,629	1,014	\$3,035	3,826	\$4,682	8,348	\$4,591	\$2,143	\$19,655	
British Honduras		10							131	158			
Costa Rica	561	1,169	244				94		61	324	238	1,716	
Guatemala	3	312	25				84	73	5,063	3,415	2,590	715	
Honduras	606	1,133	233	108			36	30	599	611	920		
Nicaragua	601	764	632				236	221	1,555	1,377		815	
Panama	55	1,286	113		4	15	304	263	4,890	3,465	327	317	
Salvador	226	359	162				6,788	4,137	4,514	194			
Mexico	25,115	27,423	6,654	561	23	158	360	309	62,226	43,300	10,905	4,481	
Minas and St. Pierre Is.							384	1,290					
Newfoundland and Labrador		2,401	127		4,749	9,821	5,846	9,160	1,440	880	458		
Bermuda							16	20	381	339	114		
Barbados			35						231	136		38	
Jamaica		114	120						7,028	5,515	189	917	
Trinidad and Tobago		128	117	819			863	514	5,703	3,203	98	214	
Other British West Indies		61	97	156					1,070	663	23	88	
Cuba	6,886	12,081	5,326				147	107	47,606	26,241	3,143	4,872	
Dominican Republic		40	383	1,072			48	67	9,606	7,089	367	422	
Dutch West Indies				11					37,746	22,251	343		
French West Indies		282	117	47					3,247	2,568		147	
Haiti							24	18	680	703	285	357	
Virgin Islands of U. S.													
<b>TOTALS, NORTH AMERICA</b>	<b>\$46,452</b>	<b>\$60,867</b>	<b>\$22,868</b>	<b>\$5,298</b>	<b>6,174</b>	<b>\$14,319</b>	<b>11,984</b>	<b>\$15,525</b>	<b>204,656</b>	<b>\$130,910</b>	<b>\$28,950</b>	<b>\$32,417</b>	
<b>SOUTH AMERICA</b>													
Argentina	\$3,514	\$4,159	\$2,054				361	\$440	24,260	\$17,161	\$11,682	\$15,223	
Bolivia	9		52						308	209	88		
Brazil	13,582	2,813	1,910		12	850	250	226	96	100	141	1,871	
Chile	11,779	4,584	586		304	1,825	914	709	100	30	401	795	
Colombia	783	2,313	241		2	11	566	519	14,297	9,351	6,330	1,328	
Ecuador		761	72						3,316	3,531			
British Guiana	15	122	231						765	506			
Dutch Guiana									613	424			
Paraguay													
Peru	668	4,596	653		72	564			882	722	522	208	
Uruguay	229	340			54	175	3,150	2,742	1,773	960	2,543	702	
Venezuela	497	651	583				216	233	100	69	2,856		
<b>TOTALS, SOUTH AMERICA</b>	<b>\$31,146</b>	<b>\$20,339</b>	<b>\$6,382</b>		<b>444</b>	<b>\$2,625</b>	<b>5,451</b>	<b>\$4,870</b>	<b>46,510</b>	<b>\$33,072</b>	<b>\$24,563</b>	<b>\$20,127</b>	
<b>ASIA</b>													
Aden													
British India	\$5,204	\$3,164	\$115						4,999	\$3,848	\$163	\$124	
Ceylon		425									51	1,012	
Straits Settlements		40	24						984	829	162	397	
Other British East Indies													
China	5,226	336	2,111				2,850	\$2,829	2,664	2,361	227	1,985	
Chosen		60	354										
Java and Madura	2,085	1,326	460									1,003	
Other Dutch East Indies		148	83						312	187		175	
French Indo-China			22										
Hejaz, Arabia, etc.			41				47	8115	2,549	2,267	925	1,182	
Hongkong												1,034	
Japan	4,842	15,298	19,749	\$2,773	558	2,065	672	530				2,003	
Palestine and Syria		123										198	
Persia													
Philippine Islands		10,018	11,608	4,106		5	21	936	878	39,960	36,015	3,496	1,656
Russia in Asia									576	1,118			
Siam										3,000	2,109		
Turkey in Asia													
<b>TOTALS, ASIA</b>	<b>\$27,563</b>	<b>\$32,510</b>	<b>\$26,895</b>	<b>\$2,773</b>	<b>610</b>	<b>\$2,201</b>	<b>7,583</b>	<b>\$7,622</b>	<b>52,844</b>	<b>\$46,531</b>	<b>\$4,099</b>	<b>\$9,587</b>	
<b>OCEANIA</b>													
Australia	\$9,324	\$4,631	\$2,310		96	\$265	2,159	\$1,120	1,367	\$2,601		\$8,271	
British Oceania		39								288	312		
French Oceania									156	162	\$23		
New Zealand		2,150	1,368	\$75	2,353	7,661				200		1,585	
Other Oceania			44						168	113	32	32	
<b>TOTALS, OCEANIA</b>	<b>\$9,324</b>	<b>\$6,820</b>	<b>\$3,722</b>	<b>\$75</b>	<b>2,449</b>	<b>\$7,926</b>	<b>2,159</b>	<b>\$1,120</b>	<b>1,979</b>	<b>\$3,188</b>	<b>\$275</b>	<b>\$9,888</b>	

## United States by Countries During June, 1925

Soles and Heels Value	Water- proofed Auto Cloth and Rubberized Fabrics Value	Water- proofed Outer Garments Value	Pneumatic Casings				Pneumatic Tubes				Solid Tires		Tire Accessories, Repair Materials		Hard Rubber Goods		Rubber Packets and Fountain Sundries	Other Drug- gists' Rubber Sundries	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
			Automobile		Others		Automobile		Others		Automobile and Motor Truck		Others	Electri- cal Supplies	Others	Water Fountain Sundries	Rubber Packets and Fountain Sundries	Other Drug- gists' Rubber Sundries	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
			Number	Value	Value	Value	Number	Value	Value	Value	Number	Value	Value	Value	Value	Value	Value	Value	Value	
2,225	2,988	120	\$2,297	11,660	1,244	1,404	120	\$2,297	11,660	1,244	202	\$5,235	1,637	\$263	\$61	\$150	\$938	\$776	\$234	
444	60	606	11,660	1,404	1,404	1,404	190	6,359	1,404	1,404	190	6,359	1,637	482	66	221	3,721	345		
123	137	415	8,645	1,244	533	533	913	16,108	2,109	2,109	102	1,116	1,116	102	66	66	66	66	43	
137	3,916	9,503	100,419	13,873	13,873	13,873	2,176	32,820	3,170	3,170	9	112	1,406	1,406	7,647	1,310	2,037	3,308	1,895	
123	137	788	11,139	1,460	1,460	1,460	212	3,642	523	523	84	2,223	1,235	1,235	144	144	144	144	602	
137	3,916	122	1,390	266	266	266	122	1,390	266	266	10	465	7,792	7,792	344	344	344	344	138	
123	137	987	11,139	1,650	849	849	73	1,344	141	141	10	465	7,792	7,792	1,667	1,667	1,667	1,667	173	
137	3,916	116	1,079	116	116	116	116	1,079	116	116	10	329	617	617	175	175	175	175	55	
137	3,916	1,909	31,121	811	2,678	2,678	1,909	31,121	811	2,678	76	3,985	1,082	1,082	63	181	181	181	9,311	
137	3,916	434	51,952	143	4,172	4,172	434	6,432	647	647	12	938	443	443	143	143	143	143	620	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	810	13,152	2,033	141	141	810	13,152	2,033	141	3,707	1,090	1,090	141	141	141	141	138		
137	3,916	6,266	91,328	2,828	8,484	8,484	6,266	91,328	2,828	8,484	29	1,232	346	346	273	273	273	273	153	
137	3,916	434	6,432	647	647	647	434	6,432	647	647	12	938	143	143	588	588	588	588	73	
137	3,916	110	1,653	382	382	382	110	1,653	382	382	10	35,099	6,490	6,490	20	25,261	25,261	25,261	147	
137	3,916	453	4,677	100	1,270	1,270	453	4,825	1,766	1,766	10	35,099	6,490	6,490	89	89	89	89	147	
137	3,916	385	515	94	94	94	385	515	94	94	10	35,099	6,490	6,490	89	89	89	89	147	
137																				

## Exports of India Rubber Manufactures from the

Africa	Belt	Hose	Packing	Thread	Bags		Shoes		Canvas Shoes with Rubber Soles		Soles and Heels	Water-proofed Auto Cloth and Rubberized Fabrics
	Value	Value	Value	Value	Pairs	Value	Pairs	Value	Pairs	Value	Value	Value
Belgian Congo		\$22					1	\$2	288	288		
Brit. West Africa												
Brit. South Africa	\$22,103	19,245	\$2,494		1,356	\$3,798	2,454	1,457	3,114	2,998	\$1,786	\$453
Brit. East Africa	1,808	130									68	
Canary Islands											228	
Egypt											42	181
Other French Africa												22
Liberia												
Morocco											144	98
Portuguese East Africa					417							
Other Portuguese Africa					11							
Spanish Africa												
<b>TOTALS, AFRICA</b>	<b>\$23,911</b>	<b>\$19,397</b>	<b>\$2,922</b>		<b>1,356</b>	<b>\$3,798</b>	<b>2,455</b>	<b>\$1,459</b>	<b>3,855</b>	<b>\$3,394</b>	<b>\$2,056</b>	<b>\$724</b>
<b>GRAND TOTALS</b>	<b>\$179,135</b>	<b>\$172,661</b>	<b>\$69,513</b>	<b>\$96,718</b>	<b>49,798</b>	<b>\$116,976</b>	<b>73,801</b>	<b>\$65,090</b>	<b>347,836</b>	<b>\$242,837</b>	<b>\$74,543</b>	<b>\$100,772</b>

## Official India Rubber Statistics for the United States

## Imports of Crude and Manufactured Rubber

	June 1925		Twelve Months Ended June, 1925		June, 1925		Twelve Months Ended June, 1925	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
<b>UNMANUFACTURED—free</b>								
Crude rubber	72,025,729	\$26,855,893	802,586,402	\$234,860,825	Tires			
Balata	53,742	24,069	873,078	446,629	Pneumatic casings	126,934	\$1,514,708	1,444,649
Jelutong or Pontianak	1,502,194	152,217	14,394,748	1,380,198	For automobiles	number		\$17,117,350
Gutta percha	288,546	40,024	2,742,052	433,162	Others	5,993	24,894	56,154
Guayule	614,400	116,828	5,148,958	920,391	Pneumatic tubes			205,670
Rubber scrap	1,696,573	61,739	14,197,932	544,241	For automobiles	number	111,150	188,257
<b>Totals</b>	<b>76,181,174</b>	<b>\$27,250,760</b>	<b>839,943,170</b>	<b>\$238,585,446</b>	Others	4,419	5,305	1,268,934
Chicle	861,220	\$424,948	10,624,375	\$5,249,496	Solid tires			2,228,219
<b>MANUFACTURED—dutiable</b>					For automobiles and motor trucks	number	8,717	217,413
Rubber belting	63,604	\$46,049	691,757	\$490,811	Others	127,984	25,703	101,716
Other rubber manufacturers of substitutes for rubber	109,245				Tire accessories	182,337	87,827	241,802
<b>Totals</b>	<b>63,604</b>	<b>\$155,294</b>	<b>691,757</b>	<b>\$1,615,205</b>	Belting	302,806	179,135	181,416
<b>Exports of Foreign Merchandise</b>					Hose	440,692	172,661	753,283
<b>UNMANUFACTURED</b>					Packing	157,933	69,513	4,648,733
Crude rubber	2,684,520	\$1,577,106	26,668,791	\$9,935,222	Soles and heels	247,350	74,543	2,842,867
Balata	32,846	19,709	611,402	398,332	Thread	80,684	96,718	909,241
Jelutong or Pontianak					Other rubber manufacturers	427,989	192,190	1,315,145
Gutta percha and rubber substitutes and scrap			102,715	8,584	<b>Totals</b>			2,664,588
<b>Totals</b>	<b>2,717,366</b>	<b>\$1,596,815</b>	<b>27,382,908</b>	<b>\$10,342,038</b>				<b>\$43,599,408</b>
Chicle	12,281	\$3,134	217,057	\$89,169				
<b>MANUFACTURED</b>								
Gutta percha and India rubber	2,002	\$1,736	142,886	\$65,882				
<b>Totals</b>	<b>2,002</b>	<b>\$1,736</b>	<b>142,886</b>	<b>\$65,882</b>				
<b>Exports of Domestic Merchandise</b>								
<b>MANUFACTURED</b>								
India rubber	1,034,289	\$78,204	6,972,561	\$659,023				
Reclaimed	3,656,495	150,256	29,271,866	1,204,812				
Footwear								
Boots	49,798	116,976	838,518	1,971,711				
Shoes	73,801	65,090	1,590,684	1,307,779				
Canvas shoes with rubber soles	347,836	242,837	4,392,776	3,145,062				
Rubber water bottles and fountain syringes	17,360	12,074	303,808	215,243				
Other druggists' rubber sundries	67,109	77,188	761,127	882,521				
Bathing caps	16,440	27,907	165,301	286,382				
Hard rubber goods	54,684	19,467	694,282	255,079				
Electric hard rubber goods	27,767	35,391	631,041	666,749				
<b>Totals</b>	<b>50,132,123</b>							<b>\$26,855,883</b>
<b>J. G. ARAUJO &amp; CO., LTD.</b>								
J. G. Araujo, the well known merchant and crude rubber exporter, has been succeeded by J. P. Araujo & Co., Ltd., Manaos, Brazil. The new company will continue the same mercantile business established by its predecessor.								

## United States Crude and Waste Rubber Imports for 1925 (By Months)

	Plantations	Pará	Africans	Centrals	Guayule	Grosso	Manicoba and Matto Grosso		Total		Miscellaneous	Waste
							1925	1924	Balata			
January	28,480	989	325	54	112	29,960	21,611	22	1,462		206	
February	21,740	1,203	120	224	163	23,456	31,763	48	908		241	
March	31,067	1,906	287	305	346	33,914	17,752	25	1,022		186	
April	25,403	1,167	332	78	244	27,231	42,436	38	987		243	
May	34,187	1,834	287	203	364	36,889	23,914	30	816		182	
June	28,522	990	225	294	299	7	30,337	18,840	33	1,160		143
July	32,147	977	335	117	321	21	33,918	18,469	46	976		371
Totals, 7 months, 1925	201,546	9,066	1,911	1,275	1,849	58	215,705		242	7,331		1,572
Totals, 7 months, 1924	165,201	7,010	1,461	398	715	..	..	174,785	307	4,787		610

Compiled from statistics supplied by the Rubber Association of America, Inc.

## United States by Countries During June, 1925 (Continued)

Country	Water-proofed Auto Cloth and Rubberized Fabrics	Value	Pneumatic Casings			Pneumatic Tubes			Solid Tires			Tire Rubber			Hard Rubber Goods			Rubber Water Bottles and Fountain Syringes			Other Drug- gists' Rubber			Rubber Toys, Balls and Balloons		
			Automobile		Others	Automobile	Others	Automobile	Others	Number	Value	Accessories	Repair Materials	Electrical Supplies	Others	Value	Rubber Bottles and Fountain Syringes	Water Bottles and Fountain Syringes	Other Drug- gists' Rubber	Bathing Caps	Value	Rubber Toys, Balls and Balloons	Value			
			Number	Value	Value	Value	Value	Value	Value	Number	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value			
United States		\$453	68	\$135	28	\$280	.....	\$16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$43	2,393	
		86	2,556	3,174	38,572	.....	3,917	\$35	149	\$3,333	.....	\$1,936	144	\$16	.....	\$111	\$750	\$812	11	12	.....	.....	.....	.....		
		128	181	25	1,198	.....	127	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	232		
		42	22	170	2,591	.....	32	.....	36	1,146	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		22	785	9,442	.....	1,826	.....	106	1,875	.....	654	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		56	87	1,258	.....	148	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		43	124	4,033	.....	664	.....	6	116	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		56	54	812	.....	80	.....	.....	.....	.....	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		43	69	709	.....	103	.....	.....	.....	.....	.....	.....	.....	.....	73	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		56	42	541	.....	121	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
		43	\$100,772	\$2,691	4,558	\$59,436	.....	\$7,028	\$254	297	\$6,470	.....	\$2,829	\$16	.....	\$111	\$761	\$824	.....	.....	.....	.....	.....	\$2,668		
		43	\$724	\$71,406	126,934	\$1,514,708	\$24,894	\$188,257	\$5,305	8,717	\$217,413	\$25,703	\$87,827	\$19,467	\$35,391	\$12,074	\$77,188	\$27,907	.....	.....	.....	.....	.....	\$107,778		

## United Kingdom Rubber Statistics

Country	Imports				Exports—Colonial and Foreign				June, 1925		Six Months Ended June, 1925	
	UNMANUFACTURED		MANUFACTURED		June, 1925		Six Months Ended June, 1925		June, 1925		Six Months Ended June, 1925	
Crude rubber	From—	Pounds	Value	Found	Value	Crude rubber	To—	Pounds	Value	Found	Value	
United Kingdom	Crude rubber	5,409,700	£694,977	29,171,900	£2,426,220	Russia	131,100	£17,072	11,215,800	£912,874	.....	.....
	From—	2,045,900	280,173	11,876,000	981,330	Sweden, Norway and Denmark	151,300	14,768	1,115,200	88,408	.....	.....
	Straits Settlements	5,409,700	280,173	11,876,000	981,330	Germany	1,188,500	115,285	12,489,900	962,042	.....	.....
	Federated Malay States	2,045,900	280,173	11,876,000	981,330	Belgium	622,360	64,177	2,922,500	243,698	.....	.....
	British India	473,500	55,933	5,513,600	413,488	France	2,967,200	402,220	19,833,000	1,771,412	.....	.....
	Ceylon and Dependencies	1,140,100	157,775	8,981,400	708,854	Spain	85,900	10,298	464,800	40,685	.....	.....
	Other Dutch possessions in Indian Seas	975,000	102,453	4,423,000	348,543	Italy	327,500	46,984	6,233,900	504,877	.....	.....
	Dutch East Indies (except other Dutch possessions in Indian Seas)	1,274,300	156,832	7,744,600	605,513	Austria	1,700	219	109,100	9,062	.....	.....
	Other countries in East Indies and Pacific, not elsewhere specified	157,000	21,408	897,000	83,433	Hungary	28,700	4,806	7,600	585	.....	.....
	Brazil	236,100	36,733	4,772,200	347,285	Other European countries	4,714,900	500,734	1,309,500	98,763	.....	.....
	Peru	5,900	760	12,600	1,320	United States	566,700	71,375	54,281,200	4,553,969	.....	.....
	South and Central America (except Brazil and Peru)	12,272,800	£1,575,046	76,021,400	£6,113,706	Canada	89,700	8,149	3,922,600	345,693	.....	.....
	West Africa	28,200	4,233	78,000	9,593	Other countries	10,885,500	£1,259,087	114,467,300	£9,577,284	.....	.....
	French West Africa	49,600	3,232	1,019,300	54,653	Waste and reclaimed rubber	75,100	1,564	203,800	5,214	.....	.....
	Gold Coast	12,200	1,375	52,300	4,173	Gutta percha and balata	19,100	2,359	499,300	38,919	.....	.....
	Other parts of West Africa	52,400	3,133	554,300	35,017	Rubber substitutes	.....	.....	55,200	2,659	.....	.....
	East Africa including Madagascar	61,700	7,795	338,600	28,062	Totals	10,885,500	£1,259,087	114,467,300	£9,577,284	.....	.....
	Other countries	351,200	48,234	586,600	66,222	MANUFACTURED	.....	.....	.....	.....	.....	.....
	Totals	13,832,400	£1,702,456	85,377,100	£6,954,241	Boots and shoes...doz. pairs	356	£969	2,522	£6,739	.....	.....
	Waste and reclaimed rubber	543,800	8,294	3,210,000	36,493	Tires and tubes	.....	.....	.....	.....	.....	.....
	Gutta percha and balata	982,000	118,229	6,085,800	802,228	Pneumatic	.....	.....	.....	.....	.....	.....
	Rubber substitutes	33,800	887	59,900	1,814	Outer covers	13,440	1,830	677	11,787	135,275	18,788
	Totals	13,832,400	£1,702,456	85,377,100	£6,954,241	Inner tubes	1,830	677	11,787	11,787	7,672	88,998
	Manufactured	22,354	£50,367	175,458	£377,303	Other rubber manufactures	.....	.....	.....	.....	.....	.....
	Boots and shoes...doz. pairs	22,354	£50,367	175,458	£377,303	Totals	.....	.....	.....	.....	.....	.....
	Tires and tubes	.....	.....	.....	.....	MANUFACTURED	.....	.....	.....	.....	.....	.....
	Pneumatic	.....	.....	.....	.....	Boots and shoes...doz. pairs	356	£969	2,522	£6,739	.....	.....
	Outer covers	.....	.....	.....	.....	Tires and tubes	.....	.....	.....	.....	.....	.....
	Inner tubes	.....	.....	.....	.....	Pneumatic	.....	.....	.....	.....	.....	.....
	Solid tires	.....	.....	.....	.....	Outer covers	13,440	1,830	677	11,787	135,275	18,788
	Other rubber manufactures	.....	.....	.....	.....	Inner tubes	1,830	677	11,787	11,787	7,672	88,998
	Totals	.....	.....	.....	.....	Other rubber manufactures	.....	.....	.....	.....	.....	.....
	Exports	23,738	£40,253	151,530	£234,607	Totals	.....	.....	.....	.....	.....	.....
	UNMANUFACTURED	.....	.....	.....	.....	MANUFACTURED	.....	.....	.....	.....	.....	.....
	Waste and reclaimed	1,609,200	£18,042	7,218,100	£83,896	Boots and shoes...doz. pairs	356	£969	2,522	£6,739	.....	.....
	Rubber substitutes	146,100	2,570	637,200	14,773	Tires and tubes	.....	.....	.....	.....	.....	.....
	Totals	1,749,300	£20,612	7,855,300	£98,579	Pneumatic	.....	.....	.....	.....	.....	.....
	Manufactured	23,738	£40,253	151,530	£234,607	Outer covers	13,440	1,830	677	11,787	135,275	18,788
	Boots and shoes...doz. pairs	23,738	£40,253	151,530	£234,607	Inner tubes	1,830	677	11,787	11,787	7,672	88,998
	Tires and tubes	.....	.....	.....	.....	Other rubber manufactures	.....	.....	.....	.....	.....	.....
	Pneumatic	.....	.....	.....	.....	Totals	.....	.....	.....	.....	.....	.....
	Outer covers	.....	.....	.....	.....	MANUFACTURED	.....	.....	.....	.....	.....	.....
	Inner tubes	.....	.....	.....	.....	Boots and shoes...doz. pairs	356	£969	2,522	£6,739	.....	.....
	Solid tires	.....	.....	.....	.....	Tires and tubes	.....	.....	.....	.....	.....	.....
	Other rubber manufactures	.....	.....	.....	.....	Pneumatic	.....	.....	.....	.....	.....	.....
	Totals	.....	.....	.....	.....	Outer covers	13,440	1,830	677	11,787	135,275	18,788
	Exports	£680,069	.....	.....	£3,758,706	Inner tubes	1,830	677	11,787	11,787	7,672	88,998

LEADING CUSTOMERS IN JUNE, 1925, FOR AMERICAN-MADE RUBBER thread included the following: France, \$37,496; United Kingdom, \$34,002; Italy, \$11,589; Canada, \$4,629; Spain, \$2,885; Japan, \$2,773; and Germany, \$2,600.

\*Corrected by inspection.

†Official returns from the six recognized public warehouses.

## Crude Rubber Arrivals at New York As Reported by Importers

## Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases		Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
JULY 16. By "Onega," South America.							Paul Bertuch & Co.				
H. A. Astlett & Co.	55						General Rubber Co.	40			
Poel & Kelly, Inc.	21			64			L. Littlejohn & Co., Inc.	66	7		165
JULY 22. By "Thuringia," London.							Meyer & Brown, Inc.	246	21	40	547
Meyer & Brown, Inc.	33			18			Foel & Kelly, Inc.	331	22	113	439
JULY 27. By "Andania," London.							Ultramarine Corporation	4			205
Meyer & Brown, Inc.	19						AUGUST 10. By "Bernini," South America.				
JULY 27. By "Deutschland," Hamburg.							H. A. Astlett & Co.	140		100	
Meyer & Brown, Inc.	37						Paul Bertuch & Co.	285			
JULY 28. By "Justin," South America.							Paul Bertuch & Co.	670			
H. A. Astlett & Co.	494		2	20	35		General Rubber Co.	96	4		
Paul Bertuch & Co.	287		2	1	44		L. Littlejohn & Co., Inc.	97			163
†Biscuits. †Pelles. ††Bales.							Meyer & Brown, Inc.	164		10	176
							Foel & Kelly, Inc.	190		42	129
							Ultramarine Corporation				141

## Plantations

	CASES											
JULY 16. By "Copenhagen," Far East.												
Baird Rubber & Trading Co., Inc.	150						Baird Rubber & Trading Co., Inc.	790				
General Rubber Co.	682						L. Littlejohn & Co., Inc.	199				
Poel & Kelly, Inc.	1,415						H. Muehlstein & Co., Inc.	584				
Chas. T. Wilson Co., Inc.	166						Vernon Metal & Produce Co., Inc.	62				
JULY 16. By "Jason," Far East.							AUGUST 2. By "Kansas," London.					
H. A. Astlett & Co.							H. A. Astlett & Co.					
H. A. Astlett & Co.	1,535						Baird Rubber & Trading Co., Inc.	371				
Baird Rubber & Trading Co., Inc.	1,530						General Rubber Co.	2,942				
Paul Bertuch & Co.	1,20						L. Littlejohn & Co., Inc.	292				
J. T. Johnstone & Co., Inc.	50						Meyer & Brown, Inc.	356				
H. Muehlstein & Co., Inc.	710						Hood Rubber Co.	131				
Poel & Kelly, Inc.	6,048						L. Littlejohn & Co., Inc.	366				
Chas. T. Wilson Co., Inc.	521						AUGUST 3. By "American Trader," London.					
JULY 16. By "President Hayes," Far East.							H. A. Astlett & Co.	1,150				
Baird Rubber & Trading Co., Inc.							Baird Rubber & Trading Co., Inc.	150				
Paul Bertuch & Co.	800						General Rubber Co.	889				
The Fisk Rubber Co.	200						Hood Rubber Co.	100				
General Rubber Co.	1,047						J. T. Johnstone & Co., Inc.	3,002				
J. T. Johnstone & Co., Inc.	105						L. Littlejohn & Co., Inc.	757				
H. Muehlstein & Co., Inc.	70						Meyer & Brown, Inc.	3,105				
Poel & Kelly, Inc.	540						Hood Rubber Co.	1,591				
Chas. T. Wilson Co., Inc.	100						Poel & Kelley, Inc.	910				
Vernon Metal & Produce Co., Inc.							J. T. Johnstone & Co., Inc.	4,797				
Chas. T. Wilson Co., Inc.							L. Littlejohn & Co., Inc.	341				
JULY 18. By "Sembilan," Far East.							AUGUST 4. By "Venice Maru," Far East.					
H. A. Astlett & Co.	240						H. A. Astlett & Co.	1,183				
Baird Rubber & Trading Co., Inc.	235						Baird Rubber & Trading Co., Inc.	491				
General Rubber Co.	143						General Rubber Co.	71				
Hood Rubber Co.	5,435						Hood Rubber Co.					
J. T. Johnstone & Co., Inc.	309						J. T. Johnstone & Co., Inc.					
L. Littlejohn & Co., Inc.	155						J. T. Johnstone & Co., Inc.	1,050				
Meyer & Brown, Inc.	2,502						Baird Rubber & Trading Co., Inc.	1,976				
Poel & Kelly, Inc.	996						General Rubber Co.	98				
H. Muehlstein & Co., Inc.	1,260						Hood Rubber Co.	200				
Vernon Metal & Produce Co., Inc.	340						J. T. Johnstone & Co., Inc.	2,461				
Chas. T. Wilson Co., Inc.	257						L. Littlejohn & Co., Inc.	583				
JULY 18. By "Volendam," Europe.							Meyer & Brown, Inc.	278				
Baird Rubber & Trading Co., Inc.							Hood Rubber Co.	4,598				
L. Littlejohn & Co.							J. T. Johnstone & Co., Inc.	1,431				
Chas. T. Wilson Co., Inc.							L. Littlejohn & Co., Inc.	2,673				
JULY 19. By "Carmania," London.							Meyer & Brown, Inc.	1,273				
Chas. T. Wilson Co., Inc.							Hood Rubber Co.	1,297				
JULY 19. By "Kentucky," Far East.							J. T. Johnstone & Co., Inc.	96				
General Rubber Co.	1,244						Baird Rubber & Trading Co., Inc.	1,556				
L. Littlejohn & Co., Inc.	1,718						General Rubber Co.	350				
Meyer & Brown, Inc.	1,261						H. A. Astlett & Co.	350				
Poel & Kelly, Inc.	1,273						Baird Rubber & Trading Co., Inc.	5,733				
Chas. T. Wilson Co., Inc.	168						General Rubber Co.	350				
JULY 19. By "Manston," Far East.							H. A. Astlett & Co.	50				
H. A. Astlett & Co.	100						Baird Rubber & Trading Co., Inc.	50				
General Rubber Co.	1,884						General Rubber Co.	5,533				
L. Littlejohn & Co., Inc.	113						H. A. Astlett & Co.	350				
Meyer & Brown, Inc.	2,744						Baird Rubber & Trading Co., Inc.	5,781				
Poel & Kelly, Inc.	868						General Rubber Co.	1,924				
Poel & Kelly, Inc.	209						H. A. Astlett & Co.	69				
Chas. T. Wilson Co., Inc.	100						Baird Rubber & Trading Co., Inc.	3,455				
JULY 20. By "Minneka," London.							General Rubber Co.	1,056				
Baird Rubber & Trading Co., Inc.	144						H. A. Astlett & Co.	341				
General Rubber Co.	1,012						Baird Rubber & Trading Co., Inc.	475				
L. Littlejohn & Co., Inc.	184						General Rubber Co.	425				
Meyer & Brown, Inc.	385						H. A. Astlett & Co.	109				
Vernon Metal & Produce Co., Inc.	382						Baird Rubber & Trading Co., Inc.	250				
Chas. T. Wilson Co., Inc.	346						General Rubber Co.	515				
JULY 20. By "President Polk," Straits							H. A. Astlett & Co.	542				
ments.							Baird Rubber & Trading Co., Inc.	200				
H. A. Astlett & Co.							General Rubber Co.	350				
Baird Rubber & Trading Co., Inc.							H. A. Astlett & Co.	350				
General Rubber Co.							Baird Rubber & Trading Co., Inc.	5,781				
L. Littlejohn & Co., Inc.							General Rubber Co.	1,924				
Meyer & Brown, Inc.							H. A. Astlett & Co.	69				
Poel & Kelly, Inc.							Baird Rubber & Trading Co., Inc.	3,455				
Poel & Kelly, Inc.							General Rubber Co.	1,056				
Chas. T. Wilson Co., Inc.	162						H. A. Astlett & Co.	1,728				
JULY 21. By "American Farmer," London.							Baird Rubber & Trading Co., Inc.	546				
General Rubber Co.							General Rubber Co.	640				
Baird Rubber & Trading Co., Inc.							H. A. Astlett & Co.	112				
JULY 22. By "Port Hobart," London.							Baird Rubber & Trading Co., Inc.					
Baird Rubber & Trading Co., Inc.							General Rubber Co.					
General Rubber Co.							H. A. Astlett & Co.					
L. Littlejohn	1,260						Baird Rubber & Trading Co., Inc.					
Meyer & Brown, Inc.	197						General Rubber Co.					
Meyer & Brown, Inc.	805						H. A. Astlett & Co.					
Chas. T. Wilson Co., Inc.							Baird Rubber & Trading Co., Inc.					
JULY 23. By "Masirah," Far East.							General Rubber Co.					
General Rubber Co.							H. A. Astlett & Co.					
L. Littlejohn							Baird Rubber & Trading Co., Inc.					
Meyer & Brown, Inc.							General Rubber Co.					
Chas. T. Wilson Co., Inc.							H. A. Astlett & Co.					
JULY 24. By "Lucerne," Far East.							Baird Rubber & Trading Co., Inc.					
General Rubber Co.							General Rubber Co.					
L. Littlejohn & Co., Inc.							H. A. Astlett & Co.					
Meyer & Brown, Inc.							Baird Rubber & Trading Co., Inc.					
Chas. T. Wilson Co., Inc.							General Rubber Co.					
JULY 25. By "Nedirah," Far East.							H. A. Astlett & Co.					
General Rubber Co.							Baird Rubber & Trading Co., Inc.					
L. Littlejohn							General Rubber Co.					
Meyer & Brown, Inc.							H. A. Astlett & Co.					
Chas. T. Wilson Co., Inc.							Baird Rubber & Trading Co., Inc.					
JULY 26. By "Agamemnon," Far East.							General Rubber Co.					
H. A. Astlett & Co.							H. A. Astlett & Co.					
Baird Rubber & Trading Co., Inc.							Baird Rubber & Trading Co., Inc.					
General Rubber Co.							General Rubber Co.					
L. Littlejohn & Co., Inc.							H. A. Astlett & Co.					
Meyer & Brown, Inc.							Baird Rubber & Trading Co., Inc.					
Chas. T. Wilson Co., Inc.							General Rubber Co.					
JULY 27. By "Lucerne," Far East.							H. A. Astlett & Co.					
General Rubber Co.							Baird Rubber & Trading Co., Inc.					
L. Littlejohn & Co., Inc.							General Rubber Co.					
Meyer & Brown, Inc.							H. A. Astlett & Co.					
Chas. T. Wilson Co., Inc.							Baird Rubber & Trading Co., Inc.					
JULY 28. By "Lucerne," Far East.							General Rubber Co.					
General Rubber Co.							H. A. Astlett & Co.					
L. Littlejohn & Co., Inc.							Baird Rubber & Trading Co., Inc.					
Meyer & Brown, Inc.							General Rubber Co.					
Chas. T. Wilson Co., Inc.							H. A. Astlett & Co.					
JULY 29. By "Lucerne," Far East.							Baird Rubber & Trading Co., Inc.					
General Rubber Co.</td												

Cauchos	Camerá	Cases
187		187
165		
547		
439		
205		
163		
176		
129		18
141		

Cases
196
68
187
912
6
2,755
10
240
4,879
16,872
90
2,815
112
1,380
1359
152
548
148

Far East.	537	625	1,043	*530	3,191	1,749	960	*100	169	52
915	2,162	2,480	53	*284	300	5,713	1,289	846	5,300	50
2,162	2,480	53	300	5,713	1,289	846	5,300	50	50	987
100	122	613	48	105	105	105	105	105	105	50
335	115	143	918	335	115	143	918	335	115	143
443	63	499	4,485	443	63	499	4,485	443	63	499
3,187	1,510	220	775	3,187	1,510	220	775	3,187	1,510	220
103	496			103	496			103	496	

CASES		CASES		Manicobas		BALES	
AUGUST 11. By "Stuart Dollar," Far East.		185	AUGUST 17. By "Anniston City," Far East.		1,320	JULY 28. By "Bakersfield," Brazil.	
H. A. Astlett & Co.			H. A. Astlett & Co.		250	Adolph Hirsch & Co., Inc.	122
AUGUST 12. By "American Banker," London.		81	Baird Rubber & Trading Co., Inc.		250		
Baird Rubber & Trading Co., Inc.			General Rubber Co.		3,030		
AUGUST 12. By "Ocean Prince," Far East.			Hood Rubber Co.		140		
H. A. Astlett & Co.	2,117		L. Littlejohn & Co., Inc.		1,591		
Baird Rubber & Trading Co., Inc.	1,797		Meyer & Brown, Inc.		700		
Pant Burtch & Co.	170		Pool & Kelly, Inc.		110		
General Rubber Co.	985		Chas. T. Wilson Co., Inc.		1,565		
Hood Rubber Co.	53				533		
L. Littlejohn & Co., Inc.	4,025						
Meyer & Brown, Inc.	989						
H. Muehlstein & Co., Inc.	1,764						
Poel & Kelly, Inc.	1,049						
Vernon Metal & Produce Co., Inc.	196						
Chas. T. Wilson Co., Inc.	1,458						
AUGUST 12. By "Paris," Havre.							
Meyer & Brown, Inc.		50					
AUGUST 13. By "Jufuku Maru," Europe.							
L. Littlejohn & Co., Inc.		48					
Meyer & Brown, Inc.		73					
AUGUST 13. By "President Adams," Far East.							
Baird Rubber & Trading Co., Inc.	300						
Baird Rubber & Trading Co., Inc.	50						
The Fisk Rubber Co.	520						
General Rubber Co.	247						
L. Littlejohn & Co., Inc.	1,844						
Meyer & Brown, Inc.	630						
Poel & Kelly, Inc.	448						
H. Muehlstein & Co., Inc.	1,136						
Chas. T. Wilson Co., Inc.	273						
AUGUST 14. By "Diomed," Far East.							
H. A. Astlett & Co.	3,311						
H. A. Astlett & Co.	50						
Baird Rubber & Trading Co., Inc.	2,091						
Baird Rubber & Trading Co., Inc.	50						
General Rubber Co.	1,316						
L. Littlejohn & Co., Inc.	1,01						
Meyer & Brown, Inc.	4,963						
Poel & Kelly, Inc.	2,046						
Vernon Metal & Produce Co., Inc.	150						
Chas. T. Wilson Co., Inc.	100						
AUGUST 14. By "Veendam," Europe.							
Baird Rubber & Trading Co., Inc.	338						
L. Littlejohn & Co., Inc.	262						
AUGUST 15. By "Enare," South America.							
Balata							
TOTALS	3,432,020	\$1,504,392	6,562,337	\$2,736,296			
Rubber, recovered	457,404	\$74,951	837,859	\$124,374			
Rubber, powdered and rubber or gutta percha scrap	300,059	13,891	691,285	31,320			
Balata	82,633	5,428	1,094	848			
TOTALS	840,095	\$94,270	1,621,129	\$162,780			
PARTLY MANUFACTURED							
Hard rubber sheets and rods.	41,107	\$24,554	90,772	\$46,709			
Hard rubber tubes.	35	35	120	120			
Rubber thread not covered.	12,757	13,700	26,046	27,193			
TOTALS	53,864	\$38,289	116,818	\$74,022			
MANUFACTURED							
Beltng							
Hose							
Facking							
Boots and shoes							
Clothing including water-proofed							
Gloves							
Hot water bottles							
Tires, solid	192	3,053	1,959	6,660			
Tires, pneumatic	3,794	39,101	6,262	82,263			
Inner tubes	1,376	3,236	3,203	7,097			
Elastic, round or flat							
Mats and matting							
Cement							
Other rubber manufacturers							
TOTALS	\$289,045		\$513,373				
TOTALS, rubber imports		\$1,925,996		\$3,486,471			

## THE INDIA RUBBER WORLD

CASES

AUGUST 17. By "Anniston City," Far East.

H. A. Astlett &amp; Co.

Baird Rubber &amp; Trading Co., Inc.

Pard Rubber &amp; Trading Co., Inc.

General Rubber Co.

Hood Rubber Co.

L. Littlejohn &amp; Co., Inc.

Meyer &amp; Brown, Inc.

Pool &amp; Kelly, Inc.

Vernon Metal &amp; Produce Co., Inc.

Chas. T. Wilson Co., Inc.

Arrived at Boston.

July 18. By "Sembilan," Far East.

L. Littlejohn &amp; Co., Inc.

General Rubber Co.

July 28. By "Dacre Castle," Far East.

General Rubber Co.

August 15. By "Anniston City," Far East.

General Rubber Co.

July 18. By "Innoko," Europe.

L. Littlejohn &amp; Co., Inc.

Hood Rubber Co.

Hood Rubber Co.

July 16. By "Venezuela," South America.

Ultramarine Corporation.

August 4. By "Esaquibo," South America.

Ultramarine Corporation.

August 7. By "Ancon," South America.

Ultramarine Corporation.

August 9. By "Jacksonville," South America.

Ultramarine Corporation.

August 11. By "Enare," South America.

Ultramarine Corporation.

August 14. By "Ecuador," South America.

Ultramarine Corporation.

July 17. By "Paria," South America.

Middleton &amp; Co., Ltd.

July 23. By "Carillo," South America.

Ultramarine Corporation.

July 28. By "Justin," South America.

H. A. Astlett &amp; Co.

Ultramarine Corporation.

July 30. By "Mayaro," South America.

Ultramarine Corporation.

August 12. By "Haiti," South America.

Middleton &amp; Co., Ltd.

## Manicobas

CASES

JULY 28. By "Belgenland," Antwerp.

Meyer &amp; Brown, Inc.

July 19. By "Carmania," Europe.

L. Littlejohn &amp; Co., Inc.

July 27. By "Deutschland," Hamburg.

Meyer &amp; Brown, Inc.

July 28. By "Taibu Maru," Europe.

L. Littlejohn &amp; Co., Inc.

AUGUST 10. By "Innoko," Europe.

L. Littlejohn &amp; Co., Inc.

AUGUST 10. By "Agamemnon," Far East.

Hood Rubber Co.

Hood Rubber Co.

AUGUST 13. By "Bredyk," Far East.

L. Littlejohn &amp; Co., Inc.

AUGUST 13. By "Roussillon," Bordeaux.

Meyer &amp; Brown, Inc.

AUGUST 13. By "Veendam," Europe.

L. Littlejohn &amp; Co., Inc.

AUGUST 13. By "Guantanamo," Mexico.

Continental Rubber Co., of New York.

AUGUST 17. By "Railways," Mexico.

Continental Rubber Co., of New York.

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Continental Rubber Co., of New York.

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Continental Rubber Co., of New York.

AUGUST 17. By "Railways," Mexico.

Continental Rubber Co., of New York.

AUGUST 17. By "Panuco," Mexico.

Continental Rubber Co., of New York.

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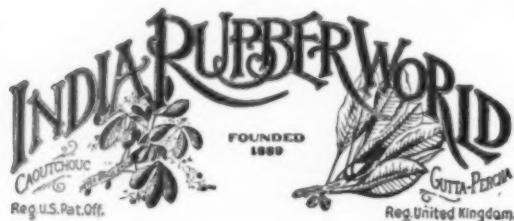
Continental Rubber Co., of New York.

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Continental Rubber Co., of New York.



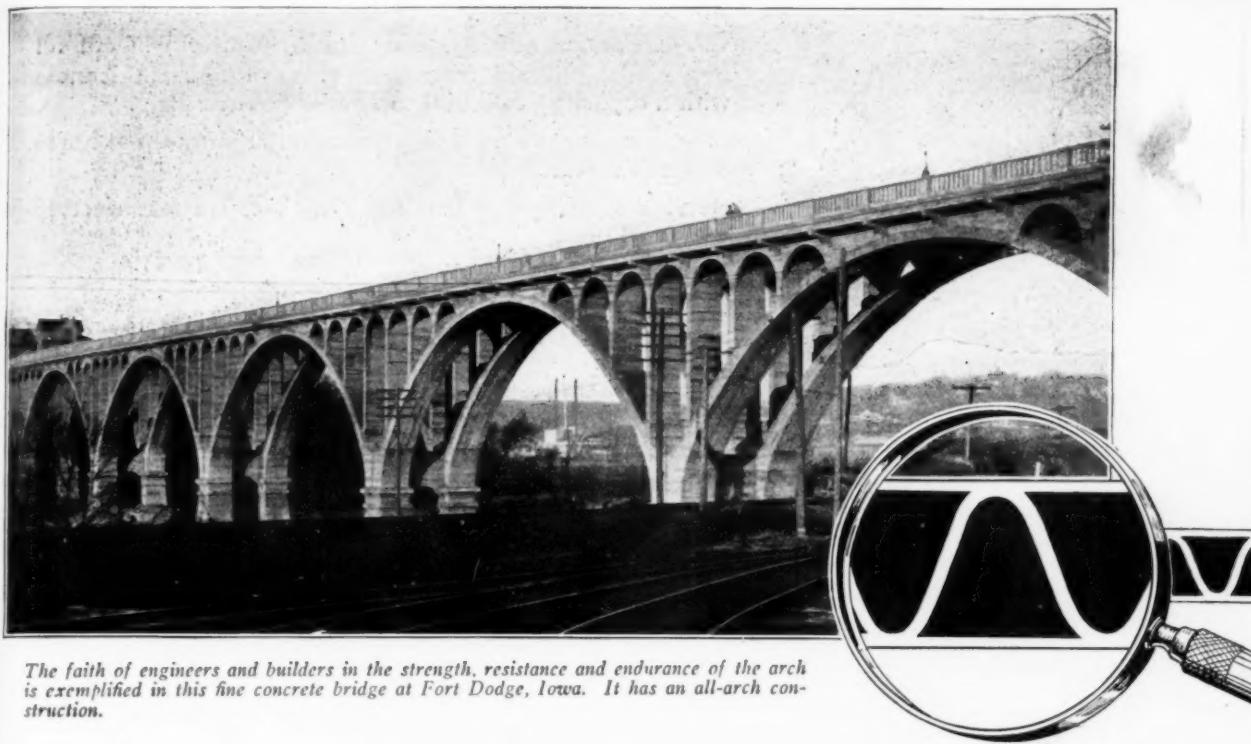
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*The faith of engineers and builders in the strength, resistance and endurance of the arch is exemplified in this fine concrete bridge at Fort Dodge, Iowa. It has an all-arch construction.*

## You Can Depend Upon Mid-West Boxes to Resist Shock and Abuse

**T**HE functions of an arch are to neutralize shocks, strains and vibrations. In so doing, it becomes a support and protection. Whether used in a bridge or in a Mid-West corrugated shipping box—its functions are the same.

As the strength and resistance of the arched bridge have been proved, so the unusual strength of the Mid-West box has been verified through many years of usage. It has proved itself a

real protection to goods in transit. It has proved its aggressive resistance to every transportation abuse. It is the best shipping package because it is the strongest made. It is the most economical, proved to the satisfaction of the country's biggest shippers. High strong arches and highest test liners are the big margins of safety.

*Give Mid-West a fair trial. We build boxes to your specifications—at your factory. Write for designer. Make your problem ours. No expense to you.*

### Three Distinctive Mid-West Features

Waterproof Container: Is everything its name implies.

Triple Tape Corners:  
Stop tapes from splitting  
and peeling.

and peeling.

tight closing contact of end flaps.

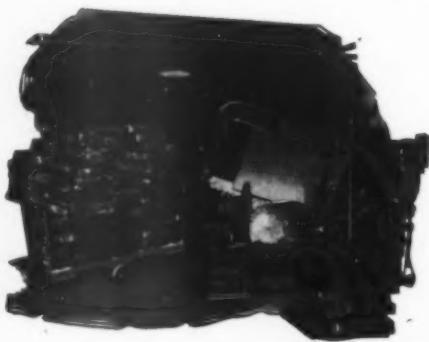
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THE Peerless High Speed Rubber Cutter will cut all grades of crude rubber into slices of desired thickness with a capacity of 60,000 to 75,000 pounds daily.

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Stands for the best in quality and workmanship  
It implies progress and constant striving after improvement  
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HOSE FOR EVERY PURPOSE - - - BELTING OF ALL KINDS  
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*"OUR GOODS WILL WEAR OUT—BUT THEY TAKE THEIR TIME ABOUT IT"*

## Pacemaker Friction Surface Belt Losant Hose—For Air, Steam, Water Norka Red Sheet Packing

*Mechanical and Special Moulded Rubber Goods for All Uses*

THE CINCINNATI RUBBER MFG. CO.

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cut all  
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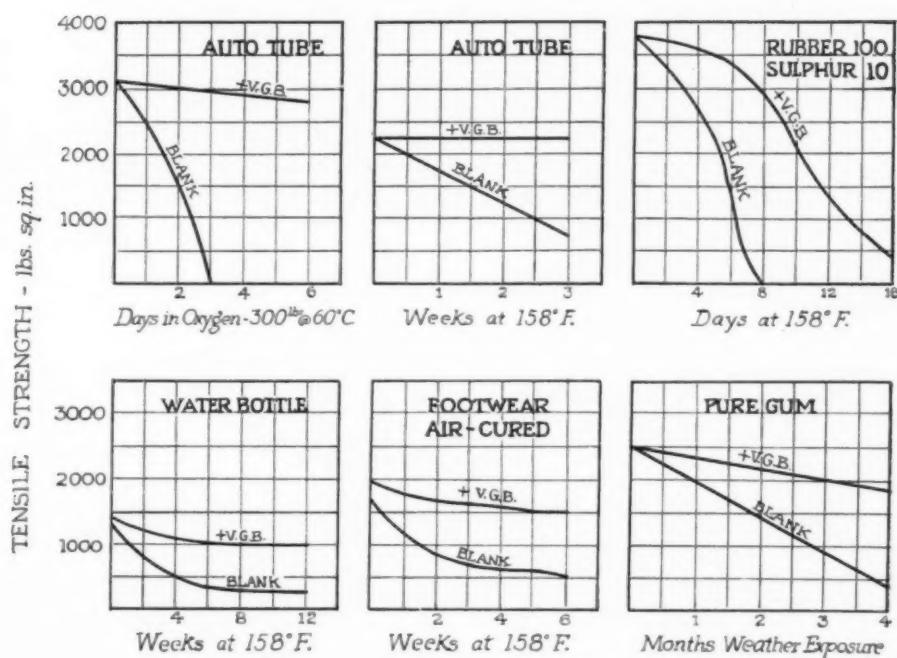
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## VGB ANTIOXIDANT

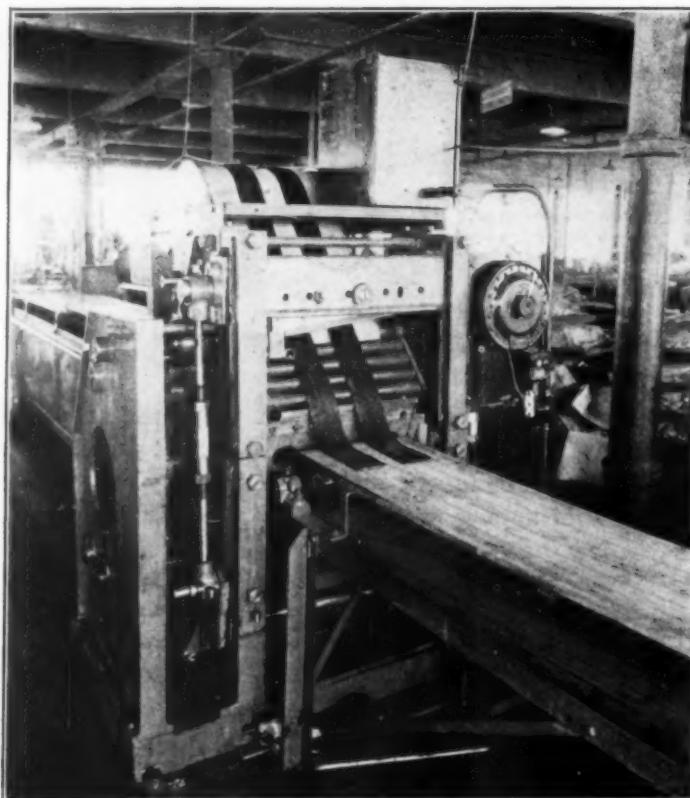
VGB causes rubber goods to offer remarkable resistance to deterioration by oxidation. VGB is non-toxic, stable and blends easily with rubber. It is being used in regular factory production. The graphs below of ageing test data show the effect of VGB on the ageing of a few types of rubber goods.



**THE NAUGATUCK CHEMICAL COMPANY**

1790 BROADWAY  
NEW YORK CITY

# OUR LABOR SAVERS



Artos Tread, Measuring and Skive Cutting Machine

Will cut raw treads to length as they leave the calender or tuber.

Will cut the treads with or without breaker and cushion.

Will save the remeasuring and cutting of ends.

Will save the remilling of end cuttings.

Our line of twenty Automatic Measuring, Cutting and Counting Machines will handle side walls on bias—Channel rubber beads, tubing, patch rubber. In fact, any article that can be fed into machine from long lengths.

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P. O. Box 398 Elizabeth, N. J.

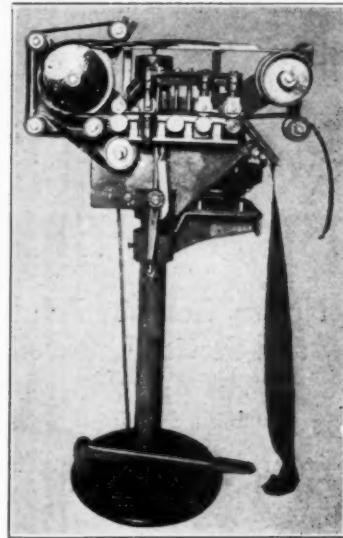
# YOUR MONEY MAKERS



Straight Side Bead Flipper

You can cover your straight side beads with a flipper strip, wrapping the fabric tightly around the core and extending the skirt at proper angle.

The machine is adjustable for any width fabric or any stagger.



Utility Clincher Bead Flipper

A machine that flips clincher beads in long continuous lengths, and cuts the bead filler from a reel or roll into lengths of the correct circumference to lay in the tire and cover with flipper strips. Both filler and cover are spliced at different points, thereby reinforcing the bead structure.

It will take an endless molded clincher bead, and cover with a flipper strip, maintaining its circumference with the skirt extended at the proper angle to lay in the tire.

The measuring wheels are adjustable to cover all variations tire makers may desire.

The machine is opened to release the bead by one-third turn of the crank.

Motor driven and furnished with built in motor and starter.



Cable Bead Equalizer and Flipper

This machine will equalize the tension on cable beads and put a flipper strip around them. The feed table is adjustable so that any width flipper can be used. Adjustments are provided for any stagger or lap you may require. Accommodates all sized beads from 18 inch to 27 inch rim diameter.

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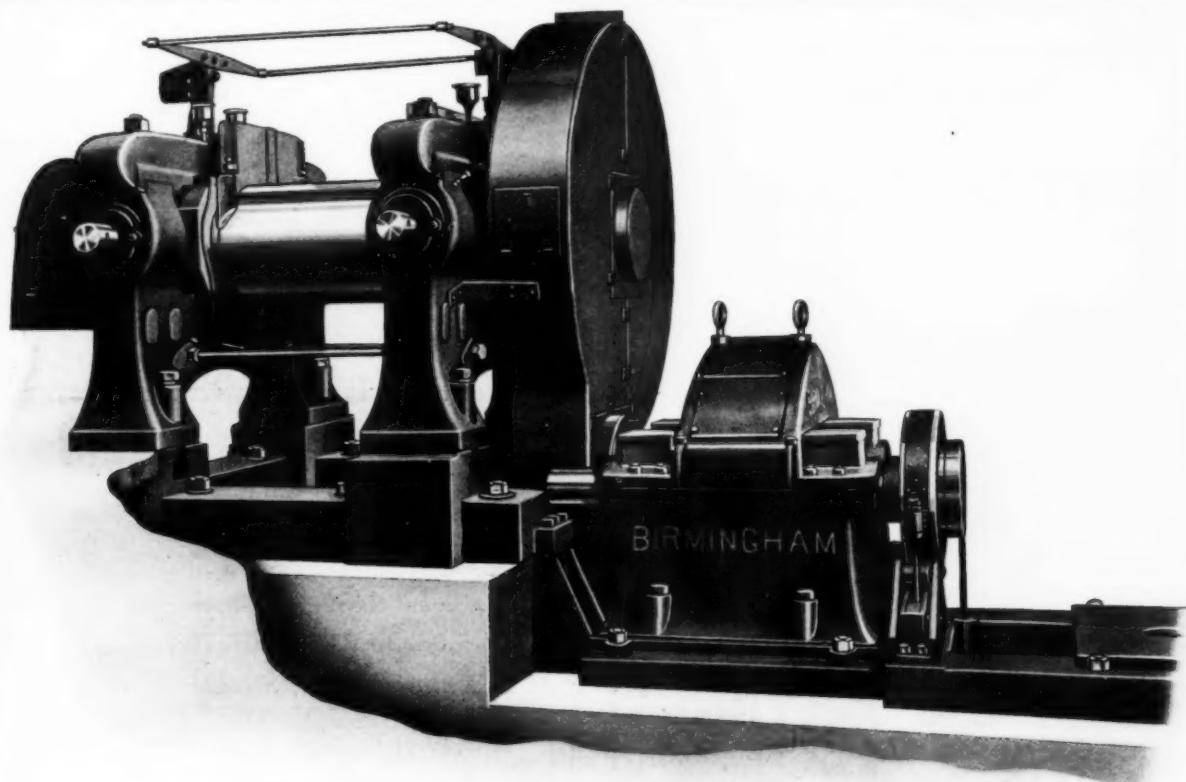
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SAN FRANCISCO

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Both Molded and Hand Made

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20" & 24" x 36" SINGLE-GEARED, HEAVY DUTY REFINER  
with Individual Motor Drive

Improved type herringbone gear reduction with automatic lubrication. Gears enclosed in oil tight guards and Safety Brake (operated mechanically or by air) provided for emergency stopping. Also arranged for line shaft drive or with motor drive on same foundation level, all parts above the floor.

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Lost time can never be recovered and money spent for maintenance adds a heavy burden to production costs.

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Cuyahoga Falls, Ohio



Above—  
Vaughn En-  
closed Her-  
ringbone Re-  
duction Gear  
Unit.

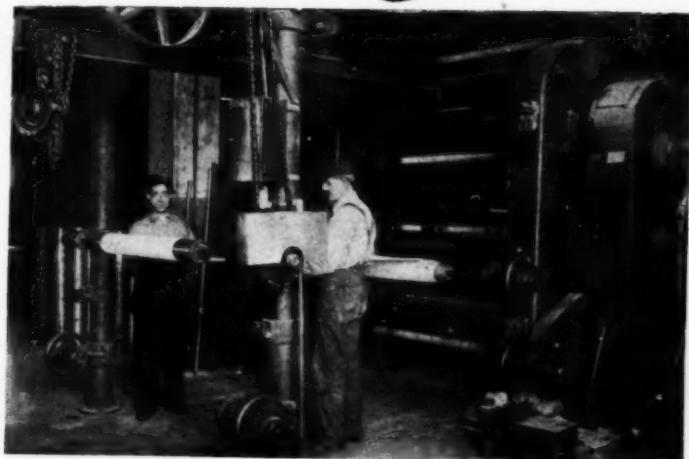
Right—Installation of a Vaughn 66" Calender with auxiliary windup and let-off for liners.



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ALL GOODS SORTED TO CONSUMERS' REQUIREMENTS

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A profitable saving of time can be effected through the new

### FARREL BALED RUBBER CUTTING PRESS

This press is hydraulically operated, cutting the rubber into a number of pie-shaped sections at a single stroke.

The machine is thoroughly covered by United States and Canadian basic patents.

Full information will be gladly sent to any company interested in saving cutting time.

### Farrel Foundry & Machine Co.

*Established 1848*

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## WILLIAMS Type "C" Press Meets Great Success

Batteries of this new Type "C" Hydraulic Heater Press are now giving satisfactory service in representative tire factories the country over.

Economies in manufacture and refinement of design throughout make a decidedly lower initial cost possible, but all the advantages, which have made our standard Outside Pack Hydraulic Press the standard of the industry, have been retained.

### *Note these outstanding advantages—*

**LONG RAM BEARING**—Usually long ram bearing and oiling device through center of one-piece casting insures smoothness and stability in loading and unloading molds. Little wear on ram, cylinder or packing insures proper alignment, uniform pressure, and reduction of "rime" on tires.

**TENSION BOLTS**—This troublesome feature is entirely eliminated by Williams type of construction in this as in all Williams heaters.

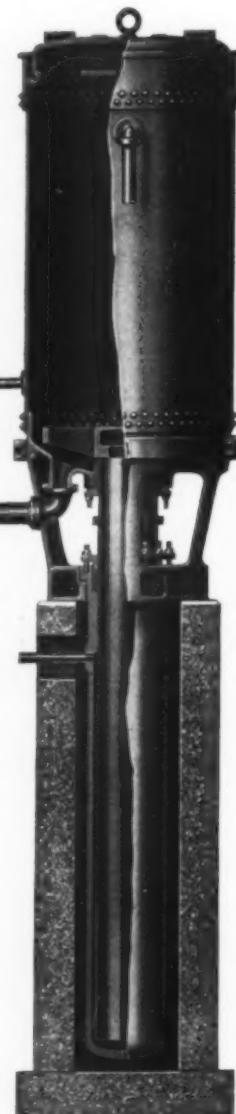
**OUTSIDE PACKING**—Either Hydraulic or Steam packing can be replaced from the outside through openings in the base casting. Conditions of packing can be determined even during a cure.

**AUTOMATIC PACKING AND HEAD-LOCKING**—No moving parts on lid. Slight turn of lid engages lugs on lid and head-ring. No bolts or nuts to tighten. Patented Automatic flap packing in head-ring seals the joint. The greater the pressure, the tighter the packing holds.

These Type "C" Presses are built in the usual range of sizes and to withstand hydraulic pressure up to 2,000 pounds.

The Williams standard of accuracy in design, quality of materials and workmanship, and efficiency of operation, make this your most logical choice for additional press equipment.

*Prompt deliveries can  
and will be made.*



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HYDRAULIC HEATER PRESS

**The Williams Foundry & Machine Co.**

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**AKRON, OHIO, U. S. A.**

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Special GRADES for the following TRADES

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BOOT AND SHOE  
MECHANICAL—AUTO TIRE  
PROOFING  
HARD RUBBER

*We will cheerfully furnish samples upon request*

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stitutes, Lime Products for ab-  
sorbing moisture, Bisulphide of  
Carbon, Mineral Rubber or Hydro  
Carbon, Cantella Gum, a rubber  
gum, etc.

LITHOPONE

OXIDE OF ZINC

GOLDEN AND CRIMSON ANTIMONY

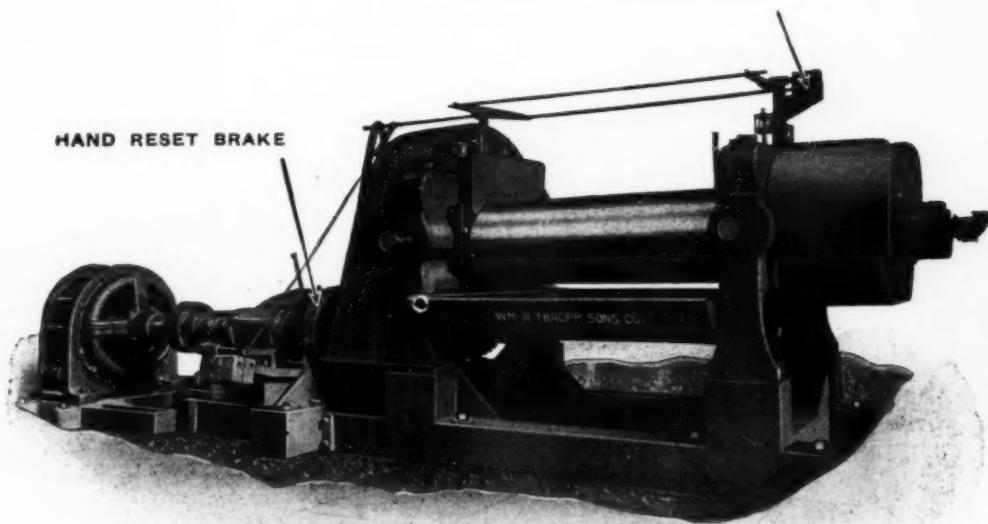
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SWITCH IN SERIES WITH  
LOW VOLTAGE RELEASE ON MOTOR



20" and 22" x 60" INDIVIDUAL MOTOR DRIVEN GRINDER OR MIXER

Driven by a 100 horse-power Motor, 720 r. p. m., with a flexible coupling between the motor and drive. Gear drive is the herringbone type; pinion is forged steel and cut on shaft, reduction gear is of open hearth steel, cut. Top cap frames with steel gibs. All iron automatic adjustable guides; oil cups at the top of frames with pipes passing through same to lubricate the bearings. Equipped with all our "Safety First" equipment. Pan under the small connecting gears, and steel guard over same, with end shield and thimbles over stuffing boxes to contain oil and for protecting gears for safety. Master Gear enclosed in wire mesh guard.

One of the most important features of the machine

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*Devine Vacuum Chamber  
Dryers insure*

absolutely uniform drying at low temperatures and away from contact with the air, thus eliminating the danger of inferior products due to incomplete drying, overheating and oxidation. Reduced handling and fuel costs, as well as factory space and time saved, are added advantages.

*Send for Bulletin 101-A*

### J. P. DEVINE COMPANY

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Suite 700  
51 E. 42nd Street  
New York City

Jas. Livingston, Ltd.,  
London,  
England



## Rubber Stock Cutting Off Machine

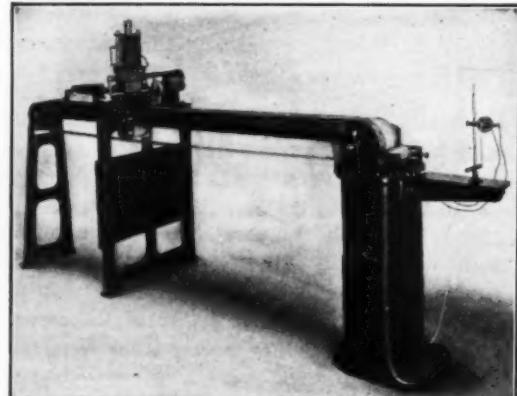
AN automatic, fast, motor driven machine that will cut uncured stock for plumbers' supplies, balls, heels, air brake hose and similar kinds of rubber goods.

If you have a cutting problem send us samples. We will be glad to show you how accurate and fast our units will do the work.

Our line of rubber cutting machinery is complete and includes, jar ring cutters, automatic washer cutters, and trimming machines.

**BLACK ROCK MFG. CO.**  
175 OSBORNE ST.

BRIDGEPORT, CONN.



### Automatic Traveling Apron with Cutting-Off Attachment

Tubing — tire treads — jar ring and all other stocks delivered from a tubing machine automatically cut to desired length and deflected from the apron. Entirely within control of the tubing machine operator. Machine equipped with straight or circular knife to suit conditions. Saving in labor alone will pay for machine within six months to a year.

**SPADONE MACHINE CO., Inc.**  
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Exclusive selling agents for  
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## For All Purposes

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QUALITY

VALUE

SERVICE

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RUBBER REGENERATING COMPANY

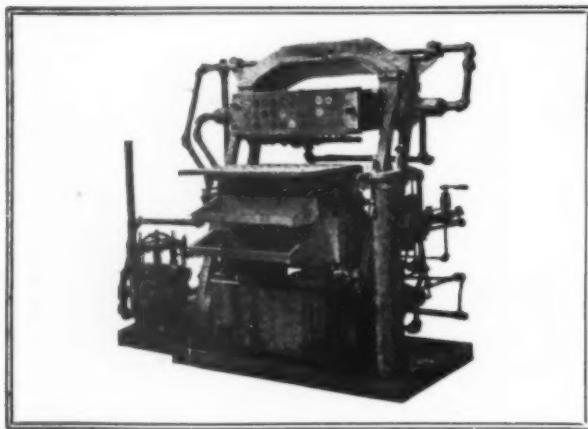
*Largest Reclaimers in the World*  
(FOUR FACTORIES)

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### Burroughs Tilting Head Molding Press

The upper head revolves allowing free access to molds for inspection, cleaning, setting of inserts, etc.

We Specialize in Equipments for Moulding Compositions

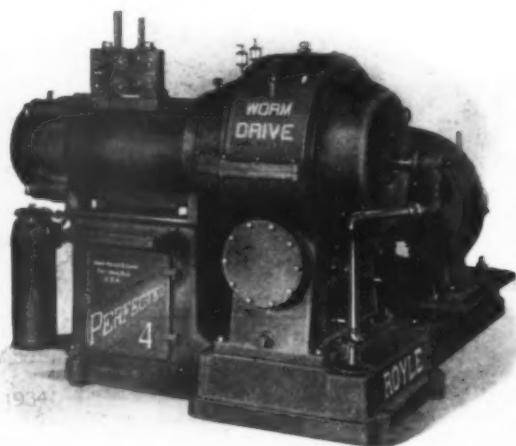
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BUILDERS OF HYDRAULIC MACHINERY FOR ALL PURPOSES



No. 4 Perfected Worm Geared Tubing Machine equipped for the production of uniform, seamless Inner Tubes: Special Inner Tubing Head and Die—Perfected Temperature Control—Motor Drive—silent worm-and-gear Transmission—Soapstoning Apparatus. Write for Booklet B-307, which describes the No. 4 Group of Royle Perfected Tubing Machines.

## COMPETITION!

A familiar word to makers of inner tubes who take their profits from strictly supervised costs! A fraction of a cent off the cost per tube here, a fraction off there and the ultimate saving means profitable production.

Many makers of inner tubes are studying the Royle No. 4 Perfected Worm Geared Tubing Machine, because in several well known plants it has meant better inner tubes, and more of them, at lower unit costs.

It can help solve your profit problem.

**JOHN ROYLE & SONS**

Paterson, N. J.



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Exporters of the Products of  
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MAIN OFFICE:  
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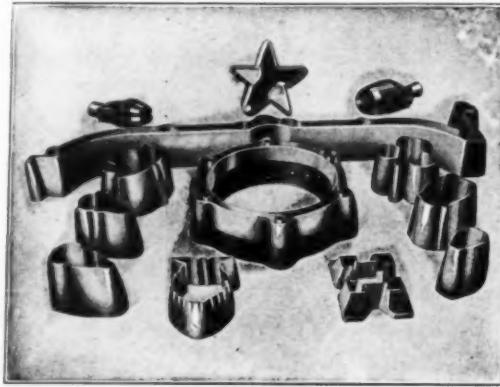
# STEEL CUTTING DIES

*for all kinds of Rubber  
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Cutting Dies  
of Quality

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Properly  
Constructed



Let us make that next Die for you. It matters not how difficult or intricate, we can make it. A trial order will convince you of our service and quality.

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We Carry in Stock in Liverpool

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$1/8$        $1/4$        $3/8$

*and can Ship Promptly*

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CABLE ADDRESS: BUCKLETON, LIVERPOOL, A. B. C., LEIBER'S and BENTLEY'S CODES.

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Meet these startling variations in the price of crude with an extended use of our standard brands of Reclaimed Rubber.

Fluctuations such as these are never experienced in Reclaimed Rubber.

Throughout the most excited scrap market in history BLACK DIAMOND, BISON SUPER-RECLAIM and BUFFALO were always available to the rubber industry at fair and reasonable prices.

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These reclaims present greater savings than ever before.



**U. S. RUBBER RECLAMING CO., Inc.**

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Factories: Buffalo, N. Y.

**"42 YEARS SERVING THE INDUSTRY SOLELY AS RECLAIMERS"**

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The text book of the tire industry—1300 pages and 900 illustrations—meets a universal demand for an authoritative work on the evolution of the air-filled tire. Fully and comprehensively describes the building of a tire from the gathering of the raw material to the inspection of the finished product. A veritable encyclopedia of the tire industry and a practical handbook arranged and indexed for ready reference. Cloth-bound, 1300 pages, 900 illustrations.

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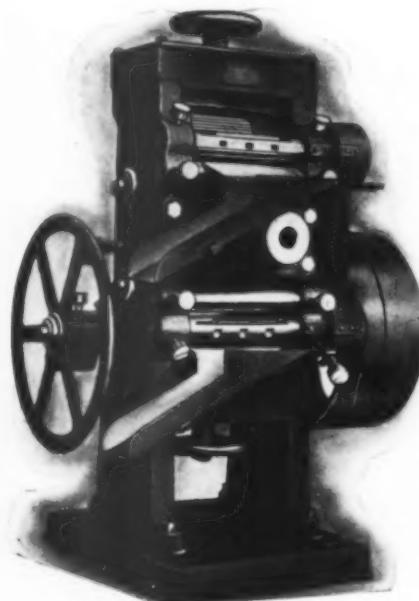


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ROBERTSON'S LEAD STRIPPER

## LEAD STRIPPING MACHINE

For removing the lead covering from rubber hose and rubber covered wires and cables after vulcanization, the Model "F" machine has been perfected.

Facilities for making rapid adjustments for various thicknesses of lead and the small number of parts required for various diameters of lead, together with compactness and the great accessibility of all parts make this machine more desirable than any former model.

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### HOSE for WATER, AIR and ACID

GARDEN HOSE, SUCTION HOSE, DAIRY HOSE, BREWERS HOSE,  
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Present crude rubber prices make necessary a careful analysis of the possibility of reducing costs.

Reclaimed rubber in a compound accomplishes quicker mixing time, better dispersion of pigments, quicker curing, also better ageing.

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A standard, jet black auto tire stock of uniform quality and high compounding capacity.

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WE market high grade friction reclaimed,  
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**HARD RUBBER**

WE CAN SATISFY YOU  
ON THE DIFFICULT GOODS

**ALSO.**

GIVE US A TRIAL  
WE CAN PROVE IT

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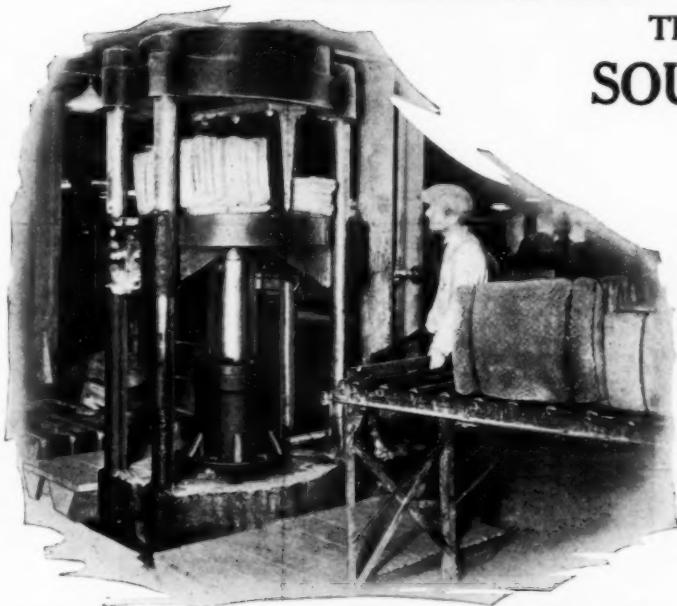
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# for EVERY OPERATION ON WHICH HYDRAULIC PRESSURE IS USED

There Is a Standard or Special

## SOUTHWARK PRESS.



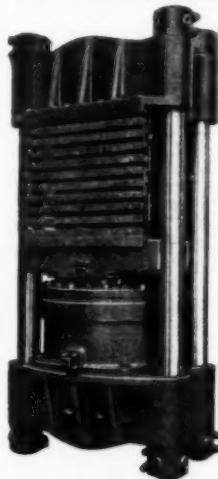
Southwark 60 Ton Hydraulic Rubber Shear Installed at the Miller Rubber Co., Akron, Ohio

The Southwark 60 ton Hydraulic Rubber Shear illustrated at the left is installed at the Miller Rubber Co., Akron, Ohio.

This machine is a simple, fast and efficient means for cutting all varieties of rubber bales. The knife can be furnished single (as shown) or multiple.

The design of the special guide shoes is such that no grease or oil can come in contact with the material being cut.

THIS IS ONE OF MANY  
SOUTHWARK SPECIAL TOOLS  
FOR THE MANUFACTURE OF RUB-  
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800-Ton Ten Opening  
40" x 40" Press  
with Steel Platens

100 E. South St.  
Akron, O.

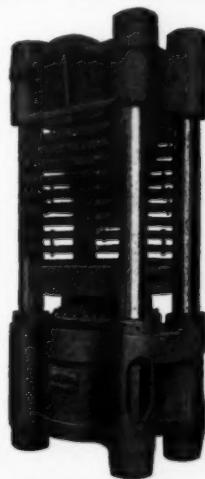
## Southwark Steam Platen Presses Fitted With Southwark Steel Platens

Give Maximum Production  
and Make Better a More Uniform Product

Presses now using cast or welded plates can be easily  
fitted with

### SOUTHWARK STEEL PLATENS

thus increasing the press capacity 50% or more—Steel platens  
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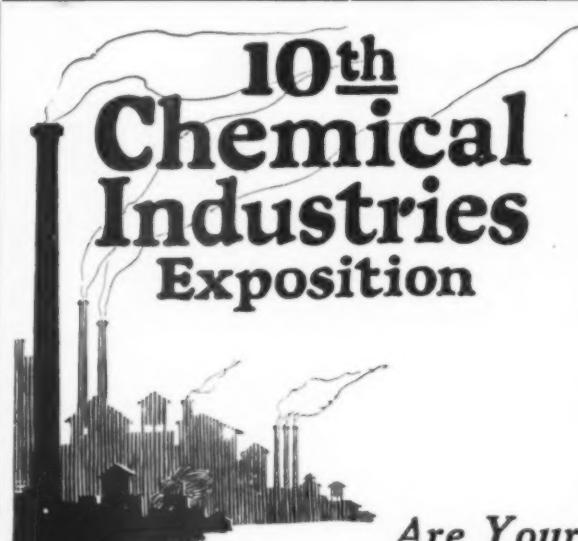
2000-Ton Ten Open-  
ing Press with Steel  
Steam Platens

343 S. Dearborn St.  
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FOUNDRY AND MACHINE CO.  
ESTABLISHED 1876  
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Chemical  
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Exposition**



*Are Your  
Eyes on the Chemist?  
His discoveries may change your  
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THE disaster which threatens the wood alcohol industry, due to the reputed discovery of a new and cheaper manufacturing process is a sign of the times. The advance of chemical research is giving industry a serious jolt. Few are secure against the new and startling discoveries that are constantly being made.

Chemical developments in the manufacture and treatment of rubber compounds during the past two years have been tremendous.

If you don't know what they are, you have a big opportunity to get the latest facts at the 10th Chemical Industries Exposition at the Grand Central Palace, Sept. 28th to October 3rd.

The country's leading chemical engineers will be there. Meet and talk with them. Exchange ideas. See for yourself the remarkable exhibits, the most up-to-date products, materials, and equipment in your particular field. You will bring back with you a vast store of information that will prove of incalculable use in your business.

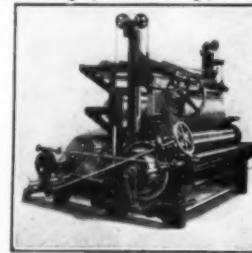
Remember the date and place. Plan to be there.

**TENTH EXPOSITION OF  
CHEMICAL INDUSTRIES**

**at New York**  
**The Grand Central Palace**  
**Sept. 28 to Oct. 3**

## THE MODERN WAY

to make stripping is to cut it on Cameron machines. Q These are the standard sources of strip supply, whether you make mechanical rubber goods, hose, adhesive tape, brake lining, belting, footwear, friction tape, tissue, insulating tapes, sheeting, duck, tire flaps, tire wrap, or other rubber goods in strips.



**CAMACHINE 10 MODEL 20**  
This is a heavy duty Cameron Machine for universal service in all the branches of the rubber industry. It is built in sizes to handle webs up to 82 inches wide, winding rolls to a maximum diameter of 36 inches. A liner apparatus for insertion and removal of liner fabric is included.

Q Let us send you information on the proper machine for your needs—mail the coupon!

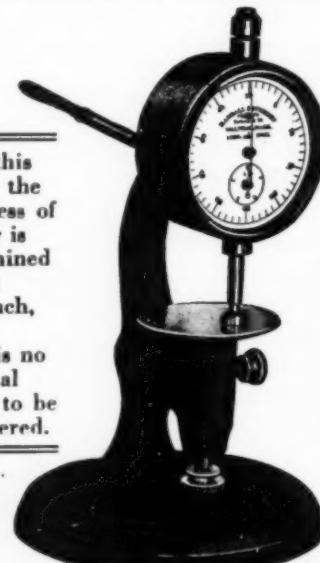
To Cameron Machine Company,  
61 Poplar Street, Brooklyn, New York.

Q Send us further information on machines for  
producing

Firm Name  
Address

## The Efficiency Rubber Gauge

(The Randall and Stickney Thickness Gauge)



With this  
Gauge the  
thickness of  
rubber is  
determined  
within  
.001 inch,  
and  
there is no  
personal  
factor to be  
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This  
instrument  
has been in  
use by  
the leading  
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fifteen years.

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DEL 20  
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*An Outstanding Achieve-  
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THE incorporation of a liberal proportion of MICRONEX, the World's Standard Gas Black in Belt Cover Stock has made possible exceptional conveyor belting, which is unequaled for its durability and toughness. It is proof against cutting and abrasive wear and impervious to oil, dirt, soot and grease.

All industrial and mechanical rubber goods manufacturers will find Micronex to be a vitally important factor towards incorporating the utmost resistance to wear and tear into their finished products.

Try 40% Micronex to 100 parts Crude Rubber in your *Heavy Duty Conveyor Cover*.

Micronex also means MAXIMUM reinforcement for the reclaims in other types of Belt Covers.

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- Non-skid molds carefully cut and well finished.
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MACHINISTS OF SKILL AND EXPERIENCE  
EAST EXCHANGE STREET, at Annadale Avenue, AKRON, OHIO

Collapsible cores of accuracy and fine finish.

Templates of exactness insuring tire and equipment uniformity.

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- Scientific methods of accuracy and uniformity.

### Our customers favor us because of:

- Products of quality, accuracy and uniformity.
- Fair prices, prompt service, and respected confidences.
- Rapid work and deliveries as promised.

THE  
**GENERAL**  
 CORD TIRE



—goes a long way to make friends



BUILT IN AKRON, OHIO, BY THE GENERAL TIRE & RUBBER CO.

*Hewitt Rubber Company*

*Manufacturers of High Grade*

**Mechanical Rubber  
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*Specialists in*

**Cord Tires      Inner Tubes  
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*Manufacturers of*

*India Rubber Thread  
for Weaving and other uses*

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of Woolen, Cotton and Rubber*

*Rubber Coated Cloths*

*Vulcanized or Unvulcanized for various purposes  
CORRESPONDENCE SOLICITED*

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THREAD CO.**

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Original Makers of **RUBBER THREAD** in America  
Also Makers of **RUBBER BANDS**

Both **THREAD** and **BANDS** are made only of the best  
UPRIVER FINE PARA RUBBER

**The Best Engineers Specify "WESTERN"**

WHEN THEY WANT THE BEST PUMP VALVES — BECAUSE  
EVERY VALVE HAS OUR GUARANTEE BACK OF IT. LET US  
CONSULT WITH YOU WHAT IS BEST FOR YOUR SERVICE.

**WESTERN RUBBER COMPANY**  
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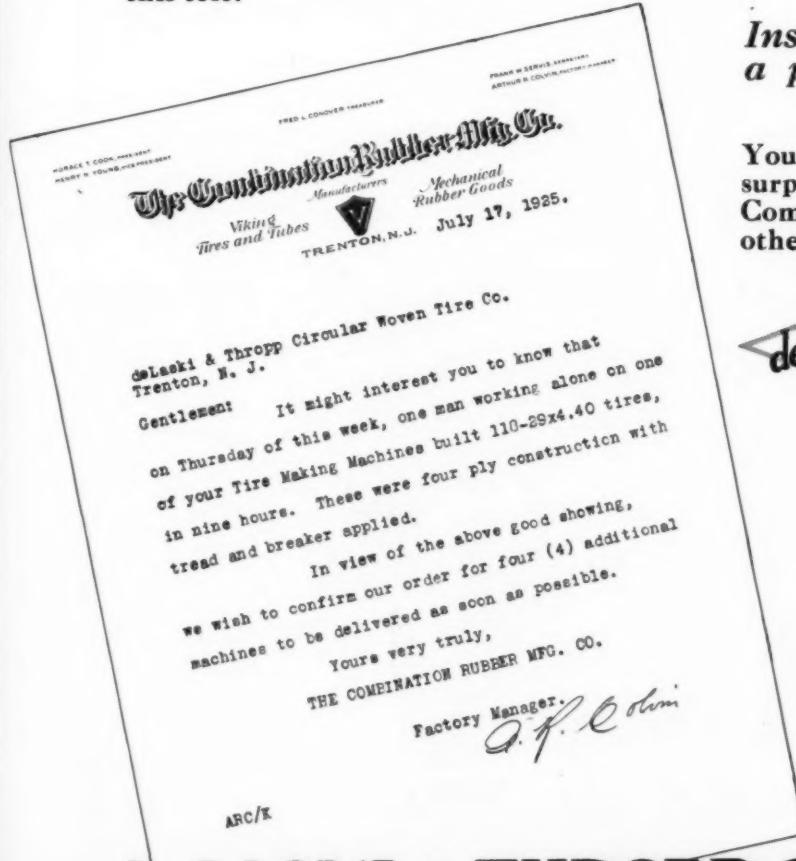
# "Thursday--One of our men built --110 Balloon Tires--in 9 Hours."

-THE COMBINATION RUBBER MFG. CO.

THIS report of a special test of the deLaski & Thropp Tire Machine, made by the Combination Rubber Manufacturing Company, Trenton, N. J., makers of the famous Viking Tire, is reproduced on this page.

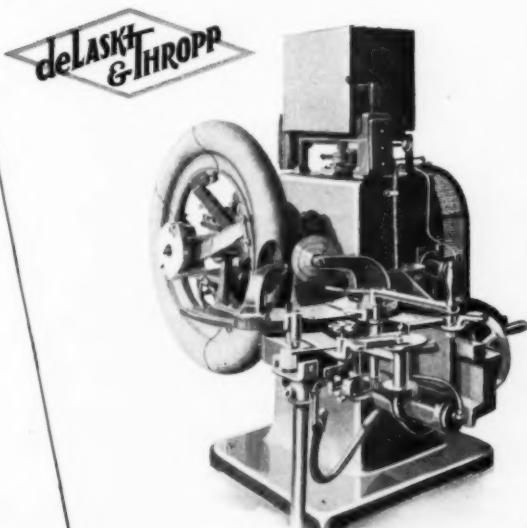
*Attached to this letter was an order for four more machines*

Every time the deLaski & Thropp Machine is given an actual factory test results are equally startling. Its superiority as a machine, and the superb quality of its product, can be thoroughly and satisfactorily demonstrated by this test:



*Install one machine as a pace maker in your factory*

You cannot fail to duplicate or surpass the record made by the Combination and a number of other important tire companies.



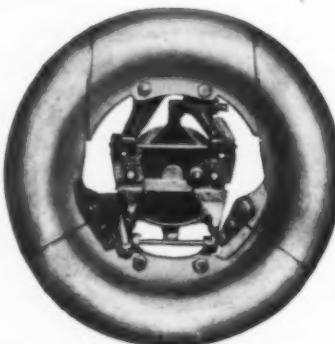
## de LASKI & THROPP Co., Trenton, N.J.

**DE MATTIA BROTHERS, INC.**  
 —SPECIALISTS—  
**In Tire Building Equipment**



**THE AUTOMATIC**

For cores for all tire sizes up to six inch as well as many 32 and 33x6.20 standard sizes. Also furnished in the Giant size for Cores for truck and bus tires of eight plies and over.



**THE UNIQUE**

The cores for all tire sizes up to seven inch and up to 6 plies.

Automatic Chucks are now carried in our  
**AKRON WAREHOUSE**  
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 NO ADDITIONAL COST

Dominant in the Field of  
 Mold and Equipment Manufacturers

**SPECIAL MACHINERY**

Our engineers are experienced in the development of new machinery for more efficient manufacturing.

Your problems are our problems.  
 Let us work with you.

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 GARFIELD, N. J.

**“-like Huber”**

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Fair dealing, prompt shipments, and a quality designed exactly for rubber compounding requirements,—these are taken for granted by users of

**Aerfleted  
 Arrow Black**

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*Manufacturers*

130 West 42nd Street, New York City



The  
 Original Joint  
 That  
 Solved the  
 Flexible  
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*Thousands in  
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 207 MARKET ST.  
 NEWARK, N. J.



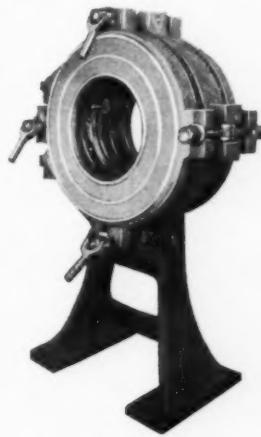
## The Economy of Correct Equipment

That is what Akron Standard offers to Rubber Manufacturers. That is why our equipment is favored in such a large—and growing—number of plants.

Such economy is especially desirable these days of high material prices. It means reduction of factory costs and factory troubles with no sacrifice in quality.

To this certainty of getting correct equipment there is added assurance of rapid execution of orders. Accustomed to handling a large volume of business, our well trained and equipped organization knows how to make every moment count.

"Right and rapid—everyday"—whether it is balloon tire molds, specialty molds, or tire building equipment. That is the unsurpassed service this company offers.

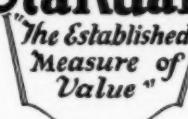


**Expanding Machine**  
Adjustable for  $3\frac{1}{2}$  inch, 4.40, and 5.25 tires. Equipped with centering guides. Segments held in perfect alignment by 3 point attachment. Smooth and even movement with minimum amount of air pressure. Easily operated, durable and inexpensive.

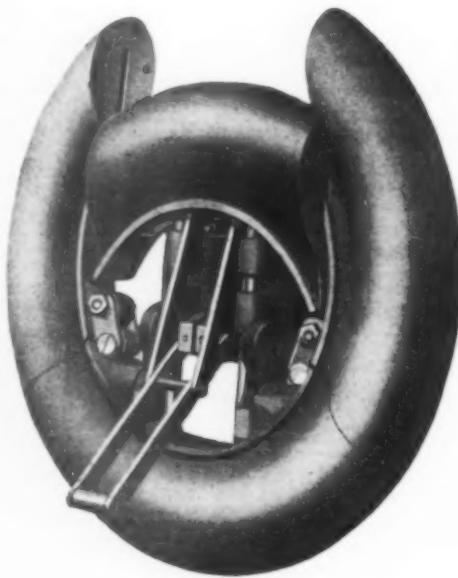
**Watch Case Vulcanizer**  
This unit eliminates pot heaters, molds, conveying apparatus, hydraulic pumps, accumulators, valves and extra heavy piping. Twelve pounds of steam per tire. No cooling water required. One man operates in 3 minutes. Inner tire shells detachable, reducing expense from obsolescence of equipment. Made of either cast iron or steel.

# The Akron Standard Mold Co.

Akron



Ohio



## India Cores

You will use them eventually

### Why Not Now?

Well Made—Quicker—Safer  
Interchangeable—Satisfactory

WRITE FOR FACTS

Licensed by India Machine & Rubber Mold Co.

WATCH CASE VULCANIZERS

Bead Trimmers  
Molds—Cores

MANUFACTURED BY

THE

**BRIDGWATER MACH. CO.**

*Mold and Core Makers Since 1901*

AKRON,

OHIO

## How Should Rubber be Dried?

The Rubber Shortage demands economy in crude and reclaim preparation.

### Carrier Drying Systems

including the well known Hunter Process, produce uninjured and uniformly dried stock. These Systems assure reduction in time, space, labor and milling costs.

*Write for details.*

**Carrier Engineering Corporation**

Offices and Laboratories

750 Frelinghuysen Ave. Newark, N. J.

## UNVULCANIZED R U B B E R

UNCURED stock milled to your specifications or if desired we will supply formula.

A modern plant equipped to wash rubber or mill for hard and soft stocks.

Excellent shipping facilities and low overhead.

Inquiries solicited on washed, milled and tubed uncured stocks.

**Gibraltar Rubber Corp.**

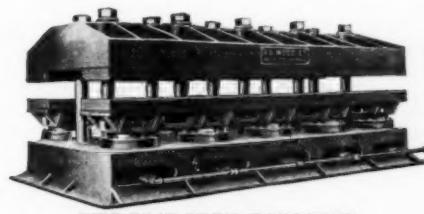
4912 Hudson Blvd., West New York, N. J.

# HYDRAULIC MACHINERY

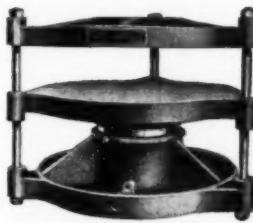
*For the Rubber Industry*



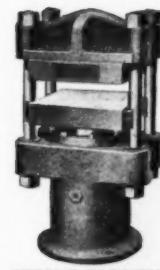
TIRE HEATER PRESS  
STANDARD TYPE



TIRE BEAD PRESS TWIN TYPE



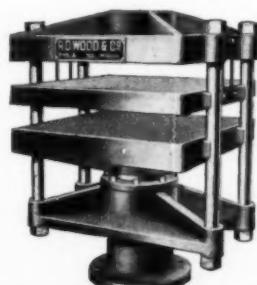
CLOSING PRESS



SINGLE OPENING  
STEAM-PLATEN PRESS



DIE CHILLING PRESS

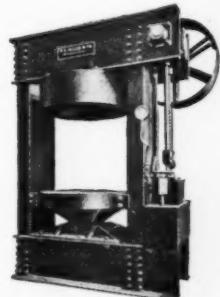


TWO OPENING STEAM-PLATEN  
PRESS

We build a complete line of up-to-date hydraulic equipment for the manufacture of rubber tires and mechanical rubber goods.

Our experience, extending over a long period of years together with our excellent shop facilities also enable us to design and build hydraulic machinery for any special requirement.

*Catalogue mailed upon request.*



TIRE FORCING PRESS

HYDRAULIC  
MACHINERY  
& OPERATING  
VALVES

**R.D.WOOD & CO.**  
ESTABLISHED 1803  
PHILADELPHIA, PA.

CAST IRON  
PIPE, HYDRANTS  
AND  
VALVES

## Would You Welcome a 25% Cut in Freight Rates?

OF course you would if that were possible without impairing the service.

It probably costs you about six cents to ship the average tire to its market. This figure cannot be materially reduced.

But you can save one and one-half cents on every tire you produce in case your compounds are accelerated with diphenylguanidine, hexamethylenetetramine, or any other compound of similar effectiveness.

At the same time you can improve your factory conditions and in some cases even improve the quality of your product.

### How?

By using Di-ortho-tolylguanidine and Vulcone. Let us submit the proof.

E. I. du Pont de Nemours & Co., Inc.

*Dyestuffs Department, Sales Division*

WILMINGTON, DELAWARE

8 Thomas St.,

New York, N. Y.

Vulcanization  Accelerators

## "WHITE FLOSS" CLAY

WATER GROUNDED

WATER FLOATED

Highest Test for the Rubber Trade  
in  
Gravity, Fineness, Abrasion Hard-  
ness, Tensile Strength, Moisture  
Content (practically bone dry)  
Absolute Uniformity.

WILL SAVE YOU ZINC ON ACCOUNT OF  
ITS EXTREME FINENESS

See Report of Bureau of Mines on Georgia Clays

THE HARSHAW FULLER  
& GOODWIN COMPANY  
CLEVELAND, OHIO

SALES AGENTS  
For  
THE AKRON PIGMENT COMPANY  
Cartersville, Ga.  
Stocks carried at  
CLEVELAND, OHIO

McINTYRE, GEORGIA

## LIQUID RUBBER

(IMPROVED)  
ultra rubber softener.

## D. P. G. SALT

ACCELERATOR  
iso-diphenylguanidine.

## RUBBER LEAD No. 4

low cost accelerator for hard rub-  
ber, boots and shoes, and mechani-  
cal goods.

## SYNTHECITE

a rubber oil that prevents stocks  
from sticking to mould.

*Write for samples and particulars*

THE SYNTHETIC PRODUCTS CO.  
Merwin and Center Streets  
Cleveland, O.

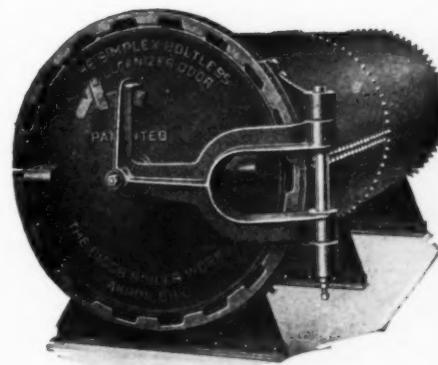
# Speaking of Biggs Vulcanizers, Of Course—

WHATEVER the price of crude rubber may do, there's one thing you can always depend upon to be satisfactory, both in price and performance.

Better cures and more of them, is the reason we have always given why you should buy Biggs Vulcanizers, and that is undoubtedly the reason why there are more Biggs Vulcanizers in service today than all other horizontal vulcanizers combined.

Biggs has been making them for the rubber industry since its infancy, keeping abreast of its growing needs, aiding its program of larger and more economical production.

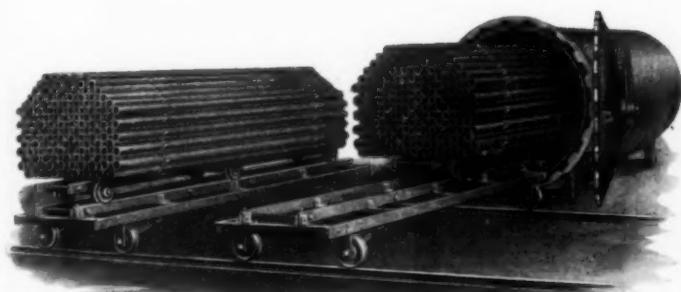
Either Simplex or Adamson Quick Opening Doors are furnished with Biggs Vulcanizers. Let us know your requirements.



Simplex Quick-Opening Door.



Adamson Quick-Opening Door, Hinged Type.



Biggs Standard Inner Tube Vulcanizer equipped with two Outside Transfer Trucks, two inside cars together with two sets of spacing bars.

**BIGGS** **VULCANIZERS**  
*The "cure" for your troubles*



## WASHED and DRIED RUBBERS

Selected Acre Bolivian Fine  
Para Washed and Air-Dried  
in the U. S. A.

Para Grades Washed and  
Air-Dried in Brazil

Beni Bolivian Fine  
Islands Fine  
Upriver Coarse  
Upper Caucho Ball

Peruvian and Brazilian  
Block Balata  
Crude Washed and Dried

*Address—Washed Rubber Department*

H. A. ASTLETT & CO.  
64 Water Street  
New York, N. Y.

## Genasco MINERAL RUBBER

A hard, natural hydrocarbon.  
Produced under the strict supervision  
of an experienced and up-to-date  
laboratory.  
Of uniform quality.  
Aging tests unequalled.  
Will not oxidize as do cheaper  
grades of mineral rubber.  
Shipped to all parts of the world in  
metal drums.  
Stocks carried at Maurer, N. J.,  
Madison, Ill., and by A. S. Carlton,  
27 Haymarket Square, Boston,  
Mass.

## THE BARBER ASPHALT COMPANY

New York	PHILADELPHIA	Chicago
Pittsburgh	St. Louis	Kansas City
		San Francisco

Producer of Gilsonite, Trinidad and Bermudez Lake  
Asphalts, and Asphaltic Products  
Cable Address, BASPACO—Philadelphia

## THE WELLMAN COMPANY

*are manufacturers of*

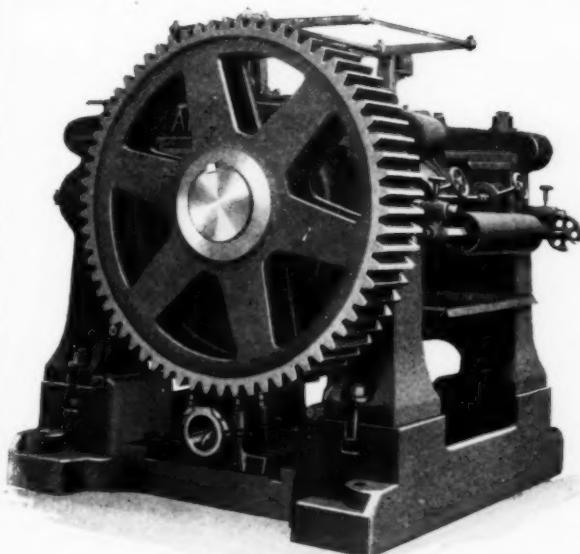
**THE WELLMAN SOLE  
CUTTING MACHINE  
AND  
THE PATTEN SOLE  
CUTTING MACHINE**

for cutting soles, taps and other  
irregular shapes at any bevel from  
27° to 90° from sheet stock.  
They are also in a position to  
work out many of your engineer-  
ing problems, to design and build  
any tool or light machine needed  
in your factory.

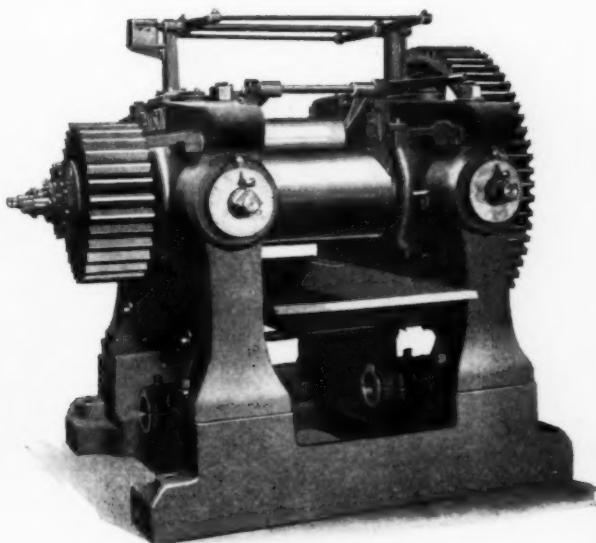
Send blue prints  
of requirements to

**WELLMAN COMPANY**  
Engineers and Machinists  
MEDFORD, MASS.

# RUBBER RECLAIMING MACHINERY



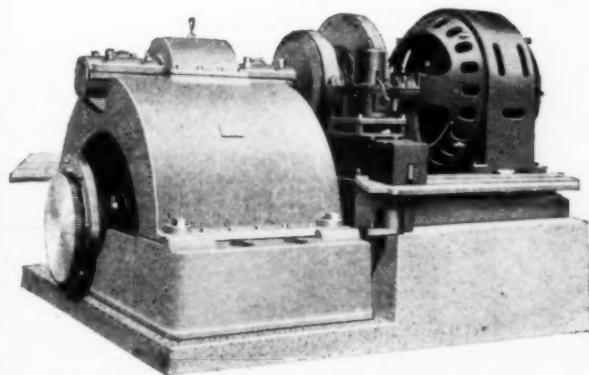
19 &amp; 24 x 30" Cracker.



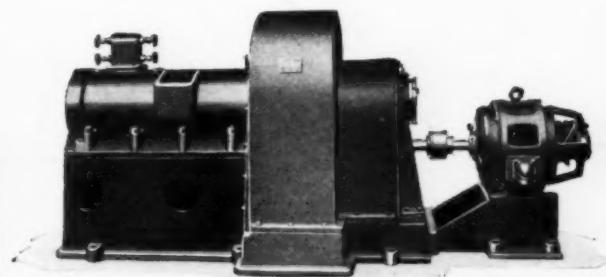
19 &amp; 24 x 30" Refiner.

Rubber Reclaiming Machinery completely modern and thoroughly efficient for prompt delivery, and to suit your special requirements. We also build all kinds of basic and special working machinery.

We are pleased to submit layouts and estimates.



Vertical type straight lined Reduction Gear Drive.



8, 10 &amp; 12" Type Strainer.

## The Adamson Machine Company

*Engineers, Machinists, Iron and Steel Founders*

AKRON

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OHIO

# One Failure Does It!

One "spill" eliminates a steeplechase entry. The miss-step may come at the first water barrier or the last hurdle—but the race is lost.

The winner takes the floral horseshoe because his stride on the stretches, his "take" and "land" at the barriers were even and regular. He ran smoothly—no faltering, no stumbling—he put forth a strenuous, uniform effort throughout the distance.

What causes some rubber goods to be classed as "also rans?" Isn't it true that in many cases the failure of rubber products can be traced to the use of some compounding ingredient of varying quality?

PARADURA runs true to form. Its purity, its performance, its physical properties are uniform, in every bag and every shipment. It does

away with the necessity for costly and troublesome readjustments of formulae. It precludes unnecessary wastes and losses. And, bear in mind, too, that PARADURA produces definite improvements in the physical properties of the rubber compounds in which it is used.

Let us have your order for a trial bag. It will do the convincing.

## H. H. ROBERTSON CO.

PITTSBURGH, PA.

FACTORIES: Ambridge, Pa., Sarnia, Ont.

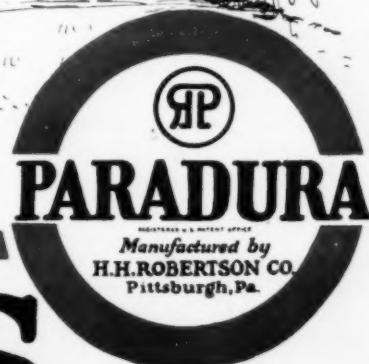
BRANCH OFFICES: In all principal cities in the United States.

For Europe & Australia: Sales Agents, Beahan & Sainsbury,  
4 Mincing Lane, London, E. C., 3, England.

For Canada: H. H. Robertson Co., Limited, Sarnia.  
General Sales Agents for Canada, Garnet Lea,  
289-291 Sumach St., Toronto, Ontario, Canada.



# ROBERTSON



# PROCESS

# THE MANHATTAN RUBBER MFG. CO.



Factories, Warehouses and Executive Offices:  
PASSAIC, NEW JERSEY



Manufacturers of

## MECHANICAL RUBBER GOODS

### BRANCHES:

BALTIMORE, 208 West Pratt St.  
BIRMINGHAM, 2017 Fifth Ave., No.  
BOSTON, 60 Pearl Street.  
CHICAGO, Peoples Gas Bldg., 122 So.  
Michigan Ave.  
CLEVELAND, OHIO, Suite 309, Rocke-  
feller Bldg.

DETROIT, 1650 Penobscot Building.  
LOS ANGELES, 1426 Santa Fe Ave.  
MINNEAPOLIS, 424 Washington Ave., No.  
NEW ORLEANS, 1007 Camp Street.  
NEW YORK, Equitable Bldg., 120 Broad-  
way.

PHILADELPHIA, 1318 Arch Street.  
PITTSBURGH, 997 Union Trust Bldg.  
PORTLAND, ORE., 27 Second St.  
SALT LAKE CITY, 1609 Walker Bank Bldg.  
ST. LOUIS, 411 Olive Street.  
SPOKANE, S. 157 Monroe Street.

CABLE ADDRESS—MIALOGIA, N. Y.

## THE ESTATES CRUDE RUBBER CORPORATION

EDWARD C. SWEENEY, JR.  
President

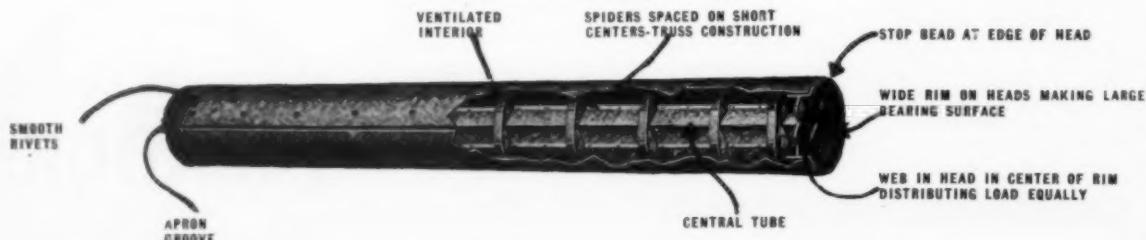
8-10 BRIDGE STREET  
NEW YORK, N. Y.

Telephones  
BOWLING GREEN 0629 to 0631

## To Have Your Product Copied Is Proof of Its Merit

Some people are copying parts of the Universal Steel Calender Shell, but they will have to copy every detail to produce a shell that will stand the rigid test of time as the Universal has done.

### The Illustration Shows Why



*"Why buy a copy when the original is even less expensive?"*

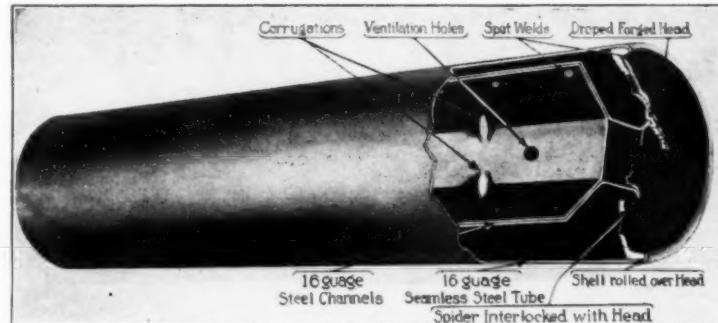
THE W. F. GAMMETER COMPANY

Cadiz, Ohio

# "3-S" CALENDER STOCK SHELL "3-S"

## STRENGTH — STABILITY — SUPERIOR

A Quality  
Shell  
Recognized  
As Such and  
Recommended  
By the  
Leading  
Engineers.



Every Shell  
Guaranteed  
Against  
Breakage.

100 Per Cent  
in Continuous  
Use.

Write for  
Details.

Mandrels for  
JAR RINGS—CAR COUPLINGS  
STEAM AND GARDEN HOSE

PATENTED

Reinforced ends inserted in Inner Tube  
Mandrels are Economical and Durable

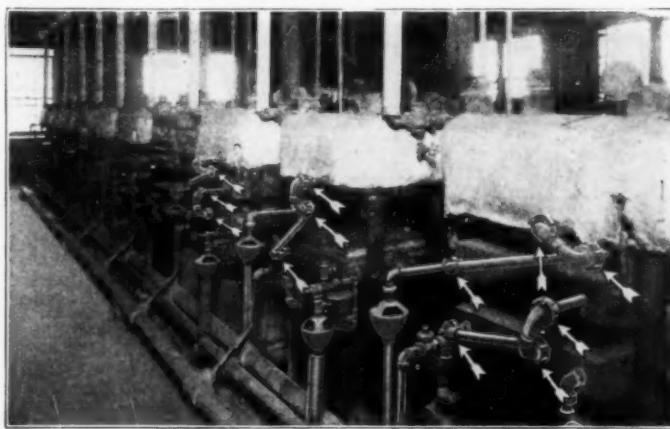
*All Mandrels Highly Polished, Sherardized and Buffed—Plugs Supplied and Inserted*

**THE NEW HAVEN SHERARDIZING COMPANY**  
868 Windsor St., Hartford, Conn. Branch Plant, Akron, Ohio



The illustration below shows the method of connecting platens on vulcanizing presses with FLEXO JOINTS.

Photograph taken at the plant of the Mechanical Rubber Company, Chicago, Ills.



## Make Your Presses More Efficient

The efficiency of your presses can be greatly increased and the cost of maintaining them cut to a small fraction of the usual figure—if you apply

## FLEXO JOINTS

(Patented)

Proper vulcanizing is a vital factor in the manufacture of rubber. Behind reliable press performance must stand dependable steam line piping.

FLEXO JOINTS will not clog, break, burst nor leak, insuring a full flow of steam at all times irrespective of the movement of the platens.

Their economy has been clearly proven by many of the leading rubber manufacturers, where data is available, and shows that the first cost of FLEXO JOINTS is quickly repaid by the savings effected.

*Order some from your dealer—or write for our trial offer.*

**FLEXO SUPPLY COMPANY**  
ST. LOUIS, MO.

FLEXO JOINTS are patented in U. S. and Canada



WE have met the technical requirements of the rubber manufacturer for red oxide, with our thorough knowledge and experience in producing this type pigment.

SAMPLE FOR TEST PURPOSES  
WILL BE SENT UPON REQUEST

FINE MAROON and BRIGHT REDS  
BONE BLACKS :: YELLOW OXIDE

# JOSEPH A. McNULTY

114 LIBERTY STREET      NEW YORK CITY

## 114 LIBERTY STREET

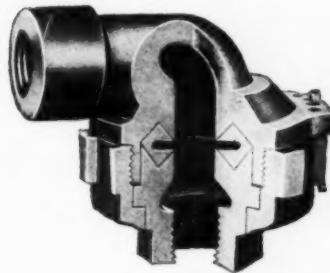
## NEW YORK CITY

## **It Costs No More To Buy the Best**

# Another Experienced Rubber Man endorses Diamond Swing Joint Efficiency—



Patented U. S. and Foreign Countries

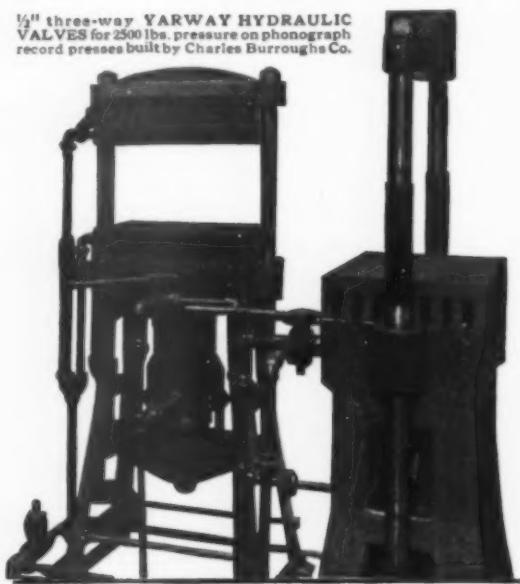


Simple as A. B. C.  
3 parts and a Seal  
—always work and  
never leak.

You are invited to test them in your own plant without charge. If they are not satisfactory, return them, and we will pay express both ways. Sizes  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1" shipped from stock.

DIAMOND METAL PRODUCTS COMPANY  
406 MARKET STREET, ST. LOUIS, MO.

1/4" three-way YARWAY HYDRAULIC VALVES for 2500 lbs. pressure on phonograph record presses built by Charles Burroughs Co.



## The higher the pressure, the tighter the valve

YARWAY HYDRAULIC VALVES are pressure-packed—increasing the pressure merely makes them hold tighter. This is accomplished by the special construction and packing features, which eliminate all stuffing boxes and cup leathers.

Wear is taken care of automatically. Every time valve is operated, sealing bushings are ground to surface of plug.



The YARWAY HYDRAULIC VALVE can be operated within a comparatively small radius, assuring quick and positive action and helping the operator to concentrate on his work.

Made for pressures up to 5000 lbs. per square inch, in two-, three-, and four-way types. Details and prices in Bulletin H-2—we're saving a copy for you.

**YARNALL-WARING COMPANY**  
7602-20 Queen St.  
PHILADELPHIA

*Representatives in Principal Cities*



PENNSYLVANIA RUBBER CO. OF AMERICA, INC.  
General Offices, Jeannette, Pennsylvania

**DOW**

# CHEMICALS

## For Rubber Makers

Carbon Tetrachloride 99.7%  
Carbon Bisulphide 99.9%  
Sulphur Chloride, Various Grades  
Ethyl Chloride  
Caustic Soda (Solid or Flake)

**DOW**

This mark identifies DOW Standards of purity and reliability. Let us quote on your requirements.

**THE DOW CHEMICAL COMPANY**  
MIDLAND, MICHIGAN

Branch Sales Offices  
90 West Street, New York City  
Second and Madison Streets, Saint Louis

# Murray Rubber Company

Factory and Main Offices

TRENTON - - - - - NEW JERSEY

MANUFACTURERS OF

**SUPERQUALITY  
BELTING, HOSE AND  
PACKING**



AND MAKERS OF

**MURRAY CORD TIRES**

## CIRCULAR MANDRELS FOR BALLOON INNER TUBES



Tubes made over circular mandrels fit the inside of the tire and do not cramp under pressure and inflation.

They take up practically no more heater space,—the cost is low and produce a superior tube.

The finished tube is circular without extra fullness on its inner circumference and there is no stretching of the outer circumference. Furnished in standard sizes or made to your specifications.

WE WILL BE GLAD TO QUOTE ON ALL SIZES IN STEEL OR ALUMINUM

**THE CLYDE E. LOWE COMPANY**

2976 East 81st St.

CLEVELAND, OHIO

*We manufacture experimental equipment for the rubber trade and solicit your inquiries*

# THE WESTMORELAND CHEMICAL AND COLOR COMPANY

PHILADELPHIA, S. E. Cor. 22nd and Westmoreland Streets

NEW YORK, 150 Nassau Street



## RED OXIDES OF IRON OXIDE OF CHROMIUM

Strictly Pure and Impalpably Fine



# GUAYULE RUBBER

"DURO" Brand Washed and Dried Ready for Compounding

A comparatively small percentage in a compound will make a stock run smoother on calenders and tubing machines, without depreciating the quality. Especially useful in frictions.

## Continental Rubber Company of New York

120 BROADWAY

NEW YORK



Trade Mark Reg.  
U. S. Pat. Off.

Time to Re-tire?  
Get a  
**FISK**

*There's a Fisk Tire of extra value for every car, truck or speed wagon.  
Fisk branches in 145 cities fill your order over night  
regardless of where you are located.*

## NEARPARA RUBBER CO. TRENTON, NEW JERSEY

### Reclaimed Rubber Manufacturers

BRANDS	FOR USE IN
"HUDSON" . . . . .	Hard Rubber Goods, Etc.
"POTOMAC" . . . . .	Insulated Wire, Etc.
"POTOMAC A" . . . . .	Hospital Sheeting, Soles, Heels, Etc.
"MERRIMAC" . . . . .	Molded Goods and Insulated Wire, Etc.
"DELAWARE" . . . . .	Druggist Sundries, Etc.
"ST. LAWRENCE" . . . . .	Ins. Wire, Auto Tire Friction, Etc.

All "NEARPARA" Stocks uniform and contain a high percentage of rubber

## Hard Rubber Manufacturers

Did you ever consider the manufacture of rubber combs?

It is the gold mine of the hard rubber trade.

We can supply you with molds and special comb making machinery.

We can also instruct you in every step of comb making.

*Write us today. We are at your service.*

**College Point Mold & Machine Co.**  
714 Seventh Avenue College Point, L. I., N. Y.

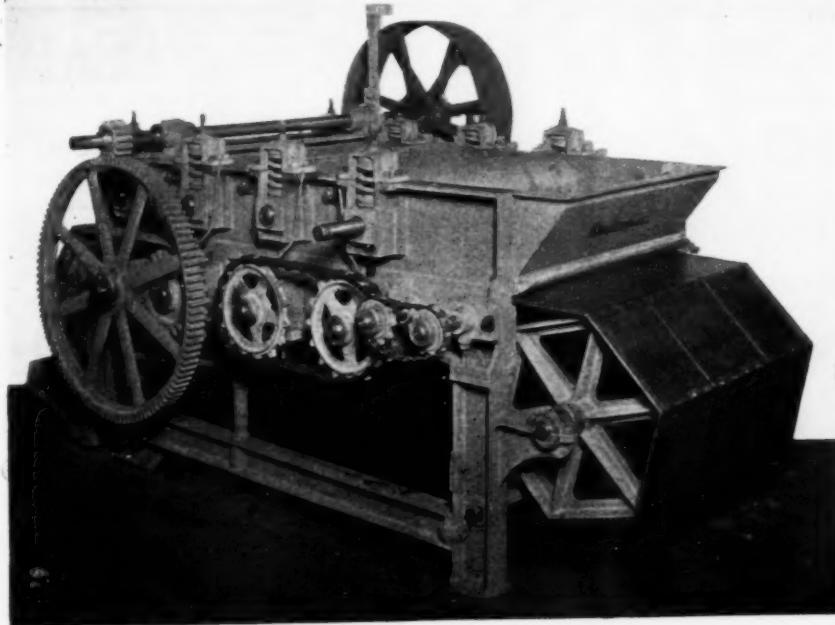
# Advanced Prices of Crude Force You to Use Scrap You Process <sup>and</sup> Wash It --

# THEN WHAT?

You must of course dry it. But, if you do not press it, the drying cost is excessive. And if you press it inefficiently, your drying cost is still too high.

## Here's The Machine that will LOWER Dewatering costs

Just read and digest the 5 superior points of the *LOUISVILLE CONTINUOUS PRESS*. They represent our contribution to the rubber industry to help combat the high price of crude.



1. Delivers **CONTINUOUSLY** up to a **TON** of pressed shoddy per hour.
2. Uses less than 3 Horse Power.
3. **DOES NOT JAM.**
4. Residual Moisture of less than 30%.
5. Fluffs the shoddy, making it easier to dry.

Date: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_

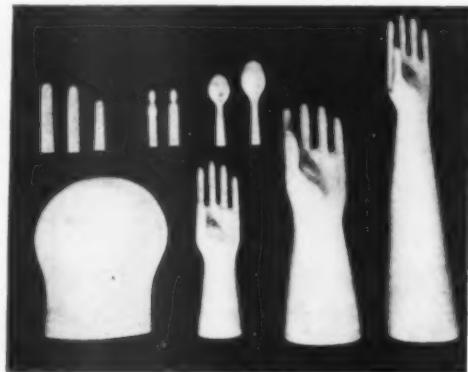
Louisville Drying Machinery Co.,  
Louisville, Ky.

Send us, without obligation, full particulars on your press for de-watering pounds rubber shoddy per hour.

**LOUISVILLE**  
DRYING MACHINERY  
**COMPANY.**  
Incorporated.  
LOUISVILLE KENTUCKY

**LOUISVILLE**      Incorporated      **KENTUCKY**

Name .....  
Address .....  
.....



## COLONIAL QUALITY

VITRIFIED PORCELAIN FORMS  
FOR DIPPED RUBBER

The Only Manufacturers of One Piece  
Up-To-Date Closed End Forms

COLONIAL INSULATOR CO.  
Established 1894

AKRON, OHIO

## ADAMS DENSIMETER

A shop instrument for determining the density of rubber in accordance with a standard scale.

This is a rugged scientific instrument designed for use in the mill as well as in the laboratory, and although it was primarily designed for testing rubber rolls, it may be used for testing any other rubber articles. It is suitable for testing rubber rolls in place in the machine in which they are used.

The DENSIMETER is the product of skilled precision instrument makers. It is carefully made and adjusted.



The value of the DENSIMETER will be appreciated when it is noted that its reading multiplied by two gives the plasticity as shown by the standard PLASTOMETER. Send for Bulletin No. 124.

Stowe & Woodward Co.  
*The Rubber Roll Makers*  
NEWTON UPPER FALLS, MASSACHUSETTS

## Thermoid Brake Lining

*Hydraulic Compressed*



THERMOID RUBBER COMPANY

*Factories and Main Office: TRENTON, N. J.*

*Branches:*

New York Atlanta Los Angeles Cleveland  
Boston Detroit Chicago Kansas City Seattle  
London Paris Turin

## PERFECT BEADS

Entire freedom from bead trouble in the construction of straightside tires is assured by the use of either National (Patented) High Tensile Strength, Flat Woven Bead Braid or our new (Pratt Patent) Bead Cables. These cables, made to dimensions specified, have seven strands, yet only one piece of wire is used without soldered, welded or brazed joint.

Our engineering department tests beads and furnishes complete confidential reports as to their stretch, set and bursting point, without charge. Inquiries solicited regarding this special service.

Write for working samples of either National flat braid or Pratt Cables (no charge to tire manufacturers) and full information as to our products and service.

National-Standard Company  
NILES, MICHIGAN, U. S. A.

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MEADE RUBBER COMPANY  
STOUGHTON, MASS.

Rubberized Fabrics of All Kinds.

Gem Duck

Rubber Heels

Sole Manufacturer of the Patented



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the Development of Our New*

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**ADAPTABLE FOR ALL FORMULAE**

**AND THE BEST STOCK ON THE MARKET  
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SAMPLES ON APPLICATION

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OUR ORGANIZATION IS EQUIPPED TO  
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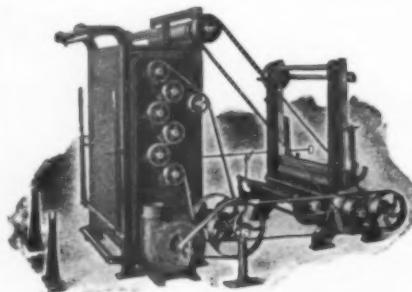
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**Brushing Machines**, for cleaning goods to be coated in connection with starch; or for cleaning cotton liners of soapstone, talc, etc.; Starching Attachments; Mill Sewing Machines, for stitching the ends of pieces together; Measuring Rolls and Dials; Rolling Machines; Inspecting Machines; Guide Frames; Machine Brushes of all kinds, etc.

The building of textile machinery for handling all varieties of cotton and other fabrics is our specialty.

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Brooklyn, N. Y.  
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# PARA HARD CURE RUBBER

WASHED AND DRIED IN BRAZIL

If you are looking for Quality and Uniformity

ASK FOR

CROWN BRAND RUBBER CREPE



COVER YOUR REQUIREMENTS  
NOW

GET THE RIGHT RUBBER FOR  
YOUR PRODUCT

It "crowns" the  
best Crepe in the Market



Packing Standardized Crown Brand Rubber Crepe

**Strong Cedar Cases—Free From Splinters**

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**MANAOS, BRASIL**

**R. T. VANDERBILT CO.**  
INCORPORATED  
50 East 42nd Street, New York

## **SUSSEX WHITING**

SUSSEX WHITING is a development of the past year in the rubber industry. It is a natural product mined near Newton, Sussex County, New Jersey. The plant is located on the L. & H. R. Railroad, a short line freight crossing seven main trunk lines within a distance of 85 miles, thereby obtaining splendid shipping service and good freight rates.

SUSSEX WHITING can be produced and sold at a very reasonable price, that is \$8.00 per ton, f. o. b. the mine, yet the quality is such that it is giving splendid satisfaction. It mills into a batch quickly and makes a softer mix than even an imported whiting. SUSSEX contains about  $\frac{1}{2}$  of 1% of graphite which acts as a lubricant thereby producing a fast tubing stock. It does not contain any chemicals which would affect either rate of cure or ageing qualities.

The use of SUSSEX is growing rapidly. Very large amounts of it can be used particularly for heavy loading of cheap stocks. It is being used now satisfactorily and extensively for *Dusting Reclaims*, and in *Compounding Insulated Wire*, *Carriage Cloth*, *Proof Goods*, *Molded Mechanicals*, *Hose*, *Tubing*, and *Tire Beads*.

### **SUSSEX IS A MONEY SAVER—TRY IT**

#### **WAREHOUSES:**

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**CATALPO is the only gritless clay in existence!**

**CATALPO gives higher resistance to abrasion than any clay ever tested!**

**CATALPO is the only clay that is absolutely uniform!**

**CATALPO is the only clay that gives a soft, flexible tread stock with the necessary abrasion resistance!**

**CATALPO gives results superior to zinc oxide at one-eighth the volume cost!**

**CATALPO is the only clay material that gives results comparable with carbon black!**

**CATALPO is the only clay successfully in use in inner tubes!**

**CATALPO is easily worth the small difference in cost!**

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**FOR NUMBER ONE, TREADS :: SOLIDS :: INNER TUBES :: HARD RUBBER**

Who is watching the rubber market for you?  
 Or are you merely getting market prices.  
 Today's market is the result of causes that took  
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 We are watching *to-morrow's* market.

H. H. HENDERSON

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Natural  
 Plantation Finished  
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*Our source of supply includes all the reputable dealers in New York*



# *The 8<sup>th</sup> Birthday of the* *R&H Rubber Service Department*

*Celebrated by an increase in personnel and equipment*

The fall of 1916 saw the first commercial use of modern accelerators. The establishment of the R & H Rubber Service Department promptly followed, August 17, 1917.

The pioneer entry into the field of rubber service marked a new era for us, as we furnished the rubber manufacturer for the first time with authoritative information on rubber chemicals for the improvement of his processes.

In the eight years of this department's existence thousands of tests have been made in conjunction with exhaustive research work. The result has been to place at the disposal of the whole rubber industry a fund of useful knowledge which serves as a basis for further ex-

periments in adapting commonly used accelerators to the compounds of individual manufacturers.

The R & H Rubber Service Department has likewise been of added value to R & H customers through the solving of knotty accelerator problems in the manufacture of all classes of rubber goods.

The department is composed of experienced rubber men who are intimately acquainted with factory processes, and who know rubber from the plantation to the finished article. It embarks on its ninth year with an increased force and enlarged facilities. Cooperation is the keynote of the Rubber Service Department so you are invited to make use of its facilities and information without charge.

*The*  
**ROESSLER & HASSLACHER CHEMICAL CO.**

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*and other*

## Special Fabrics

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A new improved design to remedy present defects in flexible connection problems—with the following features:

*Floating Spindle*  
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*No Relative Motion of Parts Due to Wear*  
*Exceptionally Long Life*

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Discriminating manufacturers of rubber goods prefer

**NATIONAL**  
PARA-NITROSODIMETHYLANILINE  
DIPHENYLGUANIDINE  
TRIPHENYLGUANIDINE  
THIOCARBANILIDE  
ANILINE OIL

The uniformity, absolute purity, and maximum strength of these accelerators meet the most exacting demands of the rubber trade. Test their adaptability for your purpose with a sample.

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National Aniline & Chemical Co., Inc.  
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for Mechanical  
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Heels, Soles, Hot Water Bottles, Syringe Bags, Bulbs,  
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Specialists in the manufacture of STEEL molds.

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ONLY RUBBER GROWN  
IN THE  
UNITED STATES

GUAYULE RUBBER PRODUCED AT MARATHON, TEXAS

WRITE FOR PRICES AND DELIVERIES

*Manufacturers' inquiry solicited  
and will receive prompt attention*

The TAINTOR Brands of

# WHITING

Made from IMPORTED CHALK

*and*

# PARIS WHITE

Made from GENUINE ENGLISH CLIFFSTONE

EVERY POUND WATER  
FLOATED

Uniformity of color and fineness insured  
by a water grinding and floating process

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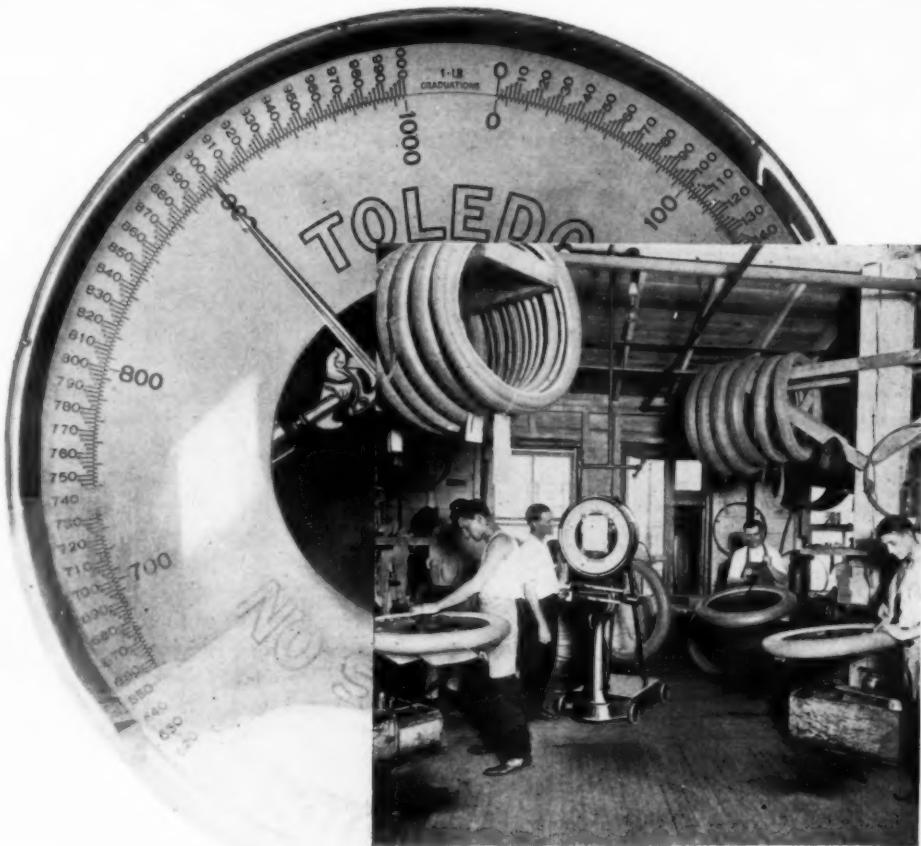
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BECAUSE Toledo Scales are adaptable to every measurement of material by weight or count for auditing, invoicing, and production control purposes—because Toledo Scales are designed to avoid the costly hazards of mechanical and human error, and built to give a long life of service wherever they are placed—because the Toledo Scale Company through its numerous field offices provides a skilled and effectual service for scales never before equalled, and by agreement with the user renders such systematic, periodic inspection as insures continued accuracy in the measurement of materials—

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Manufacturers of Automatic Scales for Every Purpose  
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**TOLEDO SCALES**

NO SPRINGS

HONEST WEIGHT



## Our Publicity Page

### The Pioneer in Rubber Planting

AS HAS BEEN the case in numerous other important rubber matters, *The India Rubber World* was first in this field and has always known what it was talking about. This has been amply proved by the phenomenal growth of the rubber planting industry in the Middle East and elsewhere, and is now being reaffirmed by the reports of the United States Government crude rubber survey. Moreover, *The India Rubber World* is still the only American rubber journal possessing first-hand information on rubber planting conditions in most tropical countries. The specific reason why it speaks authoritatively on this subject is because it has paid the price of extensive travel and investigation and does not rely on second-hand information.

#### Earliest Advocate of Plantation Rubber

Long before the beginnings of plantation rubber in the Middle East the Editor of *The India Rubber World* was advocating rubber culture. When a crude rubber shortage due to the automobile boom and consequent tire demand was foreseen in 1904 he began visiting rubber growing countries and during the thirteen years that followed traveled extensively in order to keep in touch with the details and development of rubber cultivation in various parts of the tropics and the relative merits of the several rubber producing trees. Meanwhile, *The India Rubber World* was first to herald the discovery and uses of Mexican guayule and its importance as an American rubber source. These world-wide personal investigations secured for readers of our journal a wealth of invaluable articles which have been widely copied by other journals, thereby multiplying their usefulness.

#### Long a Believer in American Grown Rubber

*The India Rubber World* has long been an advocate of American grown rubber, and when World War conditions threatened our overseas supply of crude rubber the Editor plunged into an examination of the American desert rubber

producers. The results of his articles on this subject were many and far reaching, notably the progress of machine-grown guayule and the very promising *Chrysanthemum* experiments.

The Philippines were early recognized as a promising rubber growing region under the United States flag, and during the winter of 1916-1917 the Editor of *The India Rubber World* went there at his own expense, visited the pioneer plantations and for several months studied the soil and climate, labor conditions, immigration and land tenure laws and all related matters affecting rubber culture.

The whole story of his belief that Mindanao is capable of becoming another Sumatra, was published in a series of ten articles beginning in our July 1, 1917, issue, and again briefly summarized in our March 1, 1923, issue. The conclusions reached were the same as those contained in the government report just published eight years later, and have made *The India Rubber World* the recognized Philippine rubber authority. Had American capital seized this great opportunity when it first presented itself, the rubber industry probably would not now face the threat of an artificially created rubber shortage and abnormally high prices.

#### Brighter Prospect for American Rubber Growing

British restriction of crude rubber production has again emphasized the importance of American grown rubber, and this time apparently something is really going to be done about it. Thanks to Harvey S. Firestone, the Department of Commerce has been aroused and government and private investigations and experiments are in progress at great expense. Thus far little has been developed that had not already been put on record by *The India Rubber World*. We take a pardonable pride in the fact that our pioneering has been fairly complete. It now becomes our pleasure to record the corroborative government findings, and especially the Firestone efforts in Liberia, believing that a considerable American rubber planting movement is beginning.

# CARBON BLACK

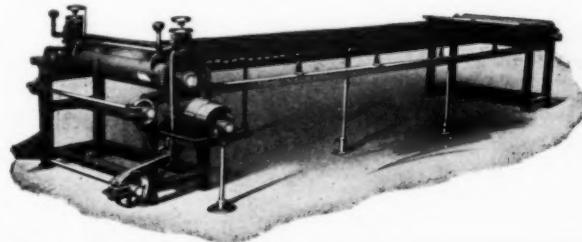
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AGENCIES IN  
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St. Louis Cincinnati

611 Metropolitan Building  
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THE EXTREMELY HEAVY CONSTRUCTION OF THESE  
**RUBBER SPREADING MACHINES**



makes them particularly well adapted for applying thin successive coatings of rubber for the manufacture of high grade sheetings, rain coatings, offset blankets, etc.

MACHINES MADE IN WIDTHS FROM 50-in. to 80-in.

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BOUGHT OR SOLD

*Let Us Have Your Inquiries*

Etablissements  
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 Cable—Wattelezaw, Paris  
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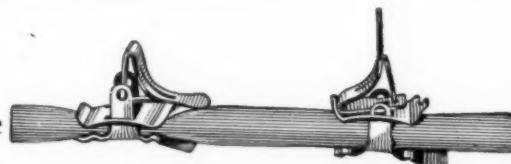
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INCORPORATED  
**CANTON** :: **MASS.**

*Largest Rubberizers of Cloth in the World*

RUBBER HEELS	SHEET RUBBER GOODS
HOSPITAL SHEETINGS	AUTO TOP MATERIALS
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**ICE BAG CAPS  
 SYRINGE SHUT OFFS  
 BATH SPRAY HEADS**

Sheet Metal Specialties and Fittings for Rubber Goods of Every Description.

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Manufacturers of the  
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Insulating, Tubing  
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The Housatonic Machine  
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**FAWCUS**  
 MILL DRIVES SPUR WORM BEVEL GEARS  
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**FAWCUS MACHINE CO. PITTSBURGH, PA.**

## Columbia Whiting

Uniform, high-grade quality specially adapted for rubber manufacturers. Write for sample and prices

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EXPERT PROCESS ENGINEERING  
 THIRTY YEARS' EXPERIENCE IN RUBBER MANUFACTURING  
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We specialize in making moulds of steel for  
 Bulbs, Balls, Mechanical Goods and Drug-  
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**Kuhn & Jacob Machine & Tool Co.**  
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## LOTHAR E. WEBER, Ph. D.

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## MAHLOW & WYCKOFF, Trenton, N.J.

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Hard Rubber and Soft Rubber Molds

Special Machinery. Machinery Built to Order

If you have operations which you now do by hand and wish to do the same by machine, we would be pleased to have you take the matter up with us.

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Sole Producers of Pure **ASBESTINE** Specially Prepared for Use in Rubber  
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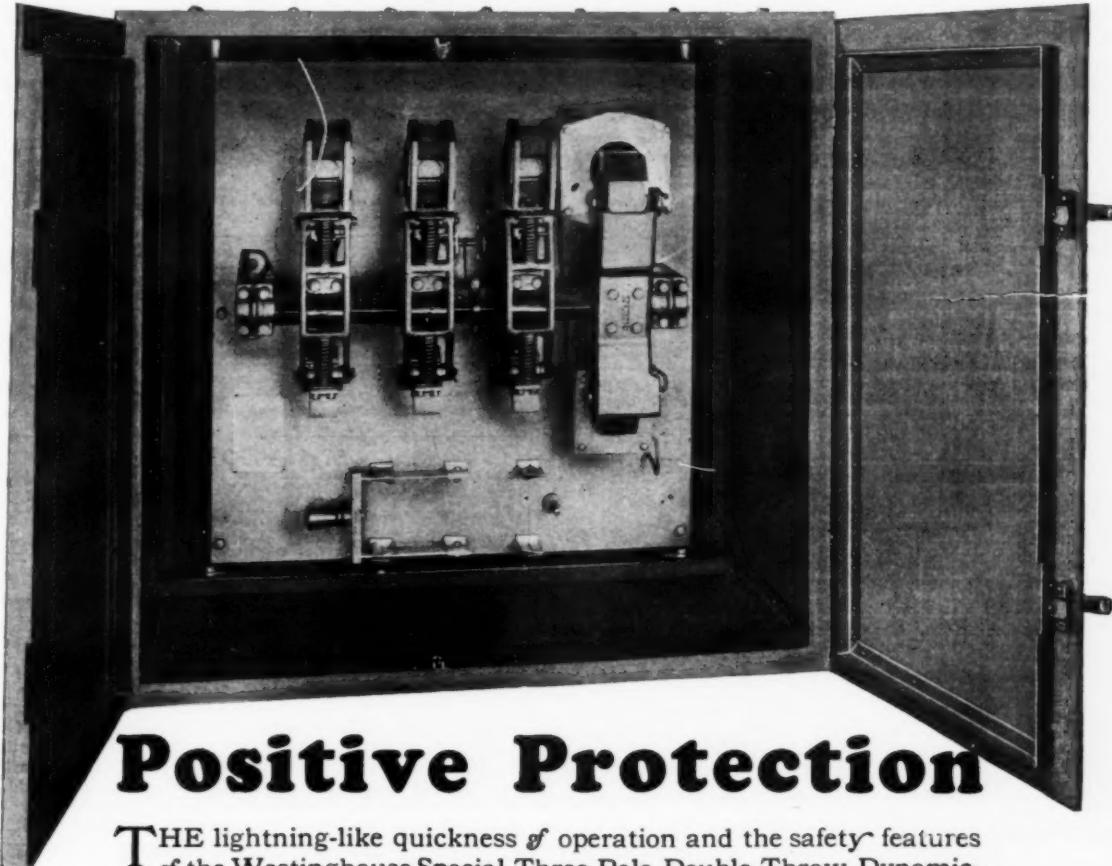
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WE WILL PAY 25 CENTS EACH FOR PERFECT AND  
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1892—May. 1916—January and October.  
 1906—August. 1920—January and February.  
 1914—November. 1921—January, February, March  
 1915—February. and December.

1923—August.

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 The India Rubber World, 25 West 45th Street, New York,



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THE lightning-like quickness of operation and the safety features of the Westinghouse Special, Three-Pole, Double-Throw, Dynamic-Braking Contactor, shown here, afford the highest degree of protection to rubber mill operators. It functions in 1/20 of a second.

The contactor closes in the dynamic braking position by gravity, and its operation is, therefore, independent of the supply voltage.

Any failure in the control wiring will cause the contactor to operate, thereby giving immediate indication of trouble.

Simplicity is the keynote of this contactor, the single unit construction resulting in high-speed operation.

Our nearest district office will gladly explain the many advantages of dynamic-braking control for rubber mill lines, or send you complete literature.

Westinghouse Electric & Manufacturing Company  
East Pittsburgh, Pennsylvania  
Sales Offices in all Principal Cities of the  
United States and Foreign Countries.



# Westinghouse

X-82938

## Small Advertisement Department

### SITUATIONS WANTED

FACTORY SUPERINTENDENT WITH FIFTEEN YEARS' EXPERIENCE in tire and tube plant desires new connection. Thoroughly familiar in every detail with all latest developments in tires and factory organization. Address Box No. 8007, care of THE INDIA RUBBER WORLD.

POSITION WANTED BY A COLLEGE TRAINED RUBBER CHEMIST. Experienced in compounding, control work and research. To assume charge of laboratory with progressive concern. Address Box No. 8023, care of THE INDIA RUBBER WORLD.

SUPERINTENDENT OR ASSISTANT. EXPERIENCED IN MOLDED and hand-made druggists' sundries, rubber bands, tubing, raincoats, automobile cloth, coated cloth of all kinds and miscellaneous mold work. Thoroughly capable. Address Box No. 8025, care of THE INDIA RUBBER WORLD.

SUPERINTENDENT OR MANAGER FOR DRUGGISTS' SUNDRIES and molded goods wishes location in the East. Graduate chemist, capable of doing own compounding and technical work. Can produce quick curing quality products to meet present day competition. Address Box No. 8026, care of THE INDIA RUBBER WORLD.

POSITION WANTED BY YOUNG MAN WITH PRACTICAL EXPERIENCE in mill and calender work. Also familiar with compounds and mixing. Address Box No. 8031, care of THE INDIA RUBBER WORLD.

FACTORY MANAGER OR SUPERINTENDENT OF GENERAL MECHANICAL goods now available for immediate connection. Proven and tested qualifications; live wire; excellent leader of men; detail knowledge of compounding, mechanics, cost and purchasing. Address Box No. 8033, care of THE INDIA RUBBER WORLD.

A HIGH GRADE BELTING AND BRAKE LINEMAN AT PRESENT employed as general foreman, seeks new connection with a well established company handling a large amount of business in either or both of these lines. Address Box No. 8034, care of THE INDIA RUBBER WORLD.

CHEMIST—COLLEGE GRADUATE. LONG RUBBER EXPERIENCE IN laboratory, factory and office. Held positions chief chemist, technical superintendent and factory manager. Good compounder; good organizer with particular aptitude for development work. Tire construction a special study. Purchasing, efficiency methods and cost accounting. Will accept any suitable position in connection with the industry. Address Box No. 8035, care of THE INDIA RUBBER WORLD.

### SITUATIONS WANTED—Continued

A RUBBER CHEMIST AND ENGINEER IS OPEN FOR A POSITION with a reliable company; familiar with compounding, analysis and factory control; has had over ten years' rubber experience. A nominal salary to start with a real opportunity desired, prefer a mid-west location. Address Box No. 8036, care of THE INDIA RUBBER WORLD.

POSITION WANTED; HAVE A THOROUGH KNOWLEDGE OF RECLAIMING SCRAP AND WASTE RUBBER; ALSO GOOD COMPOUNDER AND MILLROOM MAN. Address Box No. 8037, care of THE INDIA RUBBER WORLD.

WANTED: POSITION AS CALENDER MAN OR FOREMAN BY man with seventeen years' experience. Address Box No. 8039, care of THE INDIA RUBBER WORLD.

HARD RUBBER EXPERT DESIRES POSITION AS ASSISTANT superintendent. Twelve years assistant superintendent in large German hard rubber company. Address Box No. 8043, care of THE INDIA RUBBER WORLD.

### SITUATIONS OPEN

ASSISTANT TREASURER AND FACTORY MANAGER with services and investment. Must be capable man and know how to handle help. Good chance for advancement. Experience in rubber line preferred. Address Box No. 8008, care of THE INDIA RUBBER WORLD.

WANTED: MAN EXPERIENCED WITH ACID CURE. PERMANENT position. Factory in Connecticut. State past experience. Address Box No. 8013, care of THE INDIA RUBBER WORLD.

WANTED: ASSISTANT TIRE CHEMIST. EXCELLENT opening for college graduate who has had good experience in developing and following tire stocks. Write full particulars to Box No. 8014, care of THE INDIA RUBBER WORLD.

## RED RECLAIM

That can be used in red tube or red stock compounds. It has a high rubber content and will tube very smoothly.

*Write today for a sample*

THE DEFIANCE RUBBER  
COMPANY  
DEFIANCE, OHIO

(Advertisements continued on page 74)

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Highest purity - uniform quality - reliable shipments - dependable supply - these have become synonyms for Aero Brand.

Aero Brand D. P. G. Stock Is Carried at

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*Address all communications to New York office*

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Operating PRESSURE  
Valves



Our type "B" Stuart Two Pressure Operating Valve illustrated consists essentially of a low pressure valve, a high pressure valve, an exhaust valve and a check valve. The check valve is of the leather faced lift type, while all other valves are of the piston type packed with rings of hydraulic duck packing.

All packers may be quickly and cheaply renewed when worn out.

Let us send complete information

**PITTSBURGH VALVE FOUNDRY & CONSTRUCTION CO.**  
PITTSBURGH, PA.

## Small Advertisement Department—Continued

### SITUATIONS OPEN—Continued

EXPERIENCED MECHANICAL RUBBER GOODS SALESMAN WANTED for Kansas City district. One who can show results. Give full particulars, experience, names of previous employers, volume of sales and salary expected. Address Box No. 8015, care of THE INDIA RUBBER WORLD.

WANTED: SALESMAN TO SELL MECHANICAL RUBBER GOODS in the Rocky Mountain district. Good opportunity for high class man. Give full particulars, experience, names of previous employers, sales volume and salary expected. Address Box No. 8016, care of THE INDIA RUBBER WORLD.

WANTED: STRICTLY HIGH CLASS SUPERINTENDENT or factory manager for mechanical rubber goods factory and tire plant. One who has been connected with an old established plant. State fully experience, age, approximate number of employees handled and salary wanted. Address Box No. 8020, care of THE INDIA RUBBER WORLD.

WANTED: CAPABLE MILL-ROOM FOREMAN EXPERIENCED ON tire fabric and gum stock. Must be able to run calender. A good steady job with a progressive company in the South. State full particulars as to age, experience, references, etc., when applying. Address Box No. 8028, care of THE INDIA RUBBER WORLD.

WANTED: WORKING FOREMAN FOR TUBING DEPARTMENT OF large rubber manufacturer. Must be thoroughly experienced in the production of high grade tubings made to specifications and exact gauge. Give full information as to experience, salary and references. Excellent opportunity for the right man. Address Box No. 8038, care of THE INDIA RUBBER WORLD.

### RUBBER COMPOUNDER

Experienced and practical compounder wanted. Capable of developing tire, tube and mechanical stocks, and to be responsible for the cost and quality of merchandise in a factory now producing over 3,000 tires and tubes daily. Excellent opportunity for the man who can produce results and work diplomatically with the present organization. Address Box 8019, care of The India Rubber World.

### SITUATIONS OPEN—Continued

WANTED: THOROUGHLY WELL-QUALIFIED CORRESPONDENT familiar with the mechanical rubber goods business. One who can express himself briefly yet to the point without being abrupt or offending. State experience, age, salary wanted. Address Box No. 8022, care of THE INDIA RUBBER WORLD.

### Assistant Superintendent of Tire Department

Man wanted whose long suit is neatness and carefulness, and who can reduce scrap and seconds to a minimum in a plant now producing over 3,000 tires a day. Excellent opportunity for advancement for man who can produce results diplomatically and harmoniously with present organization. Address Box No. 8017, care of The India Rubber World.

WANTED: EXECUTIVE FOR OFFICE OF MECHANICAL rubber goods manufacturer. One thoroughly familiar with the line of goods manufactured, and who has filled similar positions with other rubber companies. Give full particulars of experience, state age, and compensation desired. Address Box No. 8021, care of THE INDIA RUBBER WORLD.

WORKING FOREMAN WANTED. ONE WITH KNOWLEDGE OF compounding preferred. For spreading room, on fine work. Address Box No. 8040, care of THE INDIA RUBBER WORLD.

WANTED: MAN FOR SMALL RUBBER MILL TO MAKE HIMSELF generally useful about plant. One who has had some experience on electric motors preferred. Address Box No. 8041, care of THE INDIA RUBBER WORLD.

### Foreclosure Sale

## ENTIRE PLANT—MACHINERY & REAL ESTATE BRITISH-AMERICAN MFG. CO. SPRINGDALE, CONN.

THURSDAY, SEPT. 3, 1925 At 12 o'clock noon  
Eastern Standard Time

### ON THE PREMISES

Property comprises about 9 3/10 acres and is situated in Springdale, Fairfield County, Connecticut, along the line of the New Canaan Branch of the N. Y., N. H. & H. R. R. Buildings are of brick, in excellent condition; main building about 220 x 60 ft., up-to-date construction. Machinery consists of calenders, mills, spreaders, motors, shafting, etc. and all incidental machinery for rubber manufacturing plant including manufacture of automobile tops.

*Further particulars may be obtained from  
MYERS & GOLDSMITH, Attorneys*

100 Broadway

New York City

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WLEDGE OF  
address Box No.

KE HIMSELF  
nce on electric  
RUBBER WORLD.

In the manufacture of red inner tubes a considerable reduction in cost can be obtained by forming the tubes from a tubing machine instead of laminating them on a calender. The tubing machine difficulties can be eliminated by the addition of 1½% of Floating Brown Factice to the tube compound.

From "The Practical Side of the Use of Factice."



**BERGENPORT BRAND**  
**PURE SOFT SULPHUR**  
 PREPARED ESPECIALLY FOR  
**Rubber Manufacturers**  
**T. & S. C. WHITE CO.**  
 Established 1841

100 William Street

NEW YORK

*Rand*

Guaranteed  
**RUBBER  
 GOODS**

Dress Shields  
 Rubber Sheetings  
 Bunny Baby Pants  
 Sanitary Requisites  
 Guimpes & Brassieres  
 Household Aprons  
 Randprint Rubber

Pure Rubber Sheets  
 Rubber Bibs  
 Crib Sheets  
 Bathing Caps  
 Rubber Specialties  
 Powder Puff Pockets

SHEET GUM cut to pattern for manufacturers

*"They last longer."*

Made by

**BROOKLYN SHIELD & RUBBER CO.**  
 BROOKLYN, N. Y.

U. S. A.

## CONSULT BANNER Before You Buy

Tire Building Machines  
 Band Builders  
 Watch Case Vulcanizers  
 Jacketed Tire and Tube Mold  
 Tire Mold Equipment  
 India and DeMatta Chucks and Cores  
 Tube Wrapping Lathe  
 Tube Unwrapper  
 Rag Reeler  
 Bead Winder  
 Bead Trimmer  
 Triplex Cement Mixer  
 Rubber Plane  
 Fabric Dryer  
 Laboratory Mills  
 Laboratory Washer  
 Laboratory Refiner  
 Tire Opening Machine  
 Tire Section Cutter  
 Skid Cutter  
 Mold Truck  
 Hose Making Machinery

**The Banner Machine Company**  
 COLUMBIANA AND AKRON, OHIO



## Tubing Specialists

Because our compounds give unusual service—

Because we make quick and dependable deliveries—

Because our large production facilities insure low prices—

—we are supplying most of the big users of baby car tire and rubber for juvenile vehicles. We produce all sizes— $\frac{1}{4}$ " to  $1\frac{1}{2}$ " on regular run—larger sizes on order.

We also specialize on C I pump tubing and All-Rubber pump tubing; C I Radiator hose and All-Rubber radiator hose.

Send us samples of what you are using or your specifications—we know how to keep our pencil sharpened when quantity business is offered.

**The Eclat Rubber Company**  
 52 E. Wetmore St., Cuyahoga Falls, Ohio

## Small Advertisement Department—Continued

### BUSINESS OPPORTUNITIES

DO YOU WANT TO GO INTO THE RECLAMING BUSINESS? IF so, we have a going concern and are ready to talk business. Address Box No. 8011, care of THE INDIA RUBBER WORLD.

**WANTED: LINE OF AUTOMOBILE FAN BELTS, TIRE inner liners, patches and other automotive lines.** We are rubber manufacturers having a national sales organization selling the wholesale jobbing trade and will purchase any of these lines under our private brand or will sell them on a commission basis. Prices positively must be low to insure volume. Will prove highly profitable for plant with low overhead. Communicate at once for quick action. Address Box No. 8024, care of THE INDIA RUBBER WORLD.

**FOR SALE: RUBBER FACTORY.** THREE-STORY BRICK BUILDING entirely remodeled recently. Situated about ninety miles from New York and twenty-five miles from Philadelphia on the Reading R. R. Plant equipped to make rubber balls, toys, etc. Address Box No. 8027, care of THE INDIA RUBBER WORLD.

**SALES AGENT.** SEVERAL YEARS' EXPERIENCE WITH RUBBER manufacturers of New England, wants good lines of pigments, fillers or reclaimed rubber. Address Box No. 8029, care of THE INDIA RUBBER WORLD.

**FOR SALE OR RENT, WITH OPTION TO PURCHASE.** FULLY equipped rubber footwear and partially equipped hard rubber factory. Two acres of ground on harbor, about fifty miles from New York City; 500 h.p. engines and boilers, good condition and ready to run. Address Box No. 8042, care of THE INDIA RUBBER WORLD.

**M. NORTON & COMPANY**  
MEDFORD, MASS.  
New, Old, Cured and Uncured Scrap Rubber  
ALL KINDS SECOND HAND RUBBER  
MILL MACHINERY BOUGHT AND SOLD  
Office and Warehouse, Locust Street, Medford, Mass.

### FOR SALE

American Process Screw Press  
Several 60" Mills  
Hydraulic Platen Presses  
24"—36"—48"  
2 and 4 deck  
Hydraulic Heaters  
36" x 36"—21" Ram  
Heaters Inside Packed  
60" x 12"—21" Ram  
Day Imperial Mixers  
200 Gallon Capacity  
Cincinnati Boring Mills  
60" Rapid Production Type  
Motors—A.C. & D.C. various  
types, speeds and H.P.  
*Let Us Have Your Inquiries*

BY-PRODUCTS SALES DIVISION

THE GOODYEAR TIRE & RUBBER  
COMPANY  
AKRON OHIO

### BUSINESS OPPORTUNITIES—Continued

**FOR SALE: MANUFACTURERS—I HAVE A RUBBER radio ear phone, sound proof attachment, patented. For sale or on royalty basis. Wonderful market for same now. Address Box No. 8001, care of The India Rubber World.**

### MACHINERY AND SUPPLIES FOR SALE

**FOR SALE: THREE (3) VACUUM DRIERS.**

Four (4) heavy duty mixing machines.

Address Box No. 8002, care of THE INDIA RUBBER WORLD.

**FOR SALE: STEAM BOILERS, ALL SIZES AND PRESSURES.** R. B. Hobson, 230 Valley Road, Montclair, N. J. (8003)

**ELECTRICAL EQUIPMENT FOR IMMEDIATE DELIVERY.** MILL line motors, 220-volt, 440-volt, 2200-volt. Calender motors, D. C., variable speed. Motor generator sets. Tube machine motors. Most complete stock anywhere. Use our experience. Address Box No. 8004, care of THE INDIA RUBBER WORLD.

**FOR SALE: USED MILLS, CALENDERS, CHURNS, TUBING** machines, vulcanizers, presses, etc., all in fine condition. Write for prices and full descriptions. Address Box No. 8005, care of THE INDIA RUBBER WORLD.

**FOR IMMEDIATE SHIPMENT, TWO HORIZONTAL DIGESTERS,** new standard equipment, jacketed, 1,500 gallon capacity, never used, perfect condition. Address Box No. 8006, care of THE INDIA RUBBER WORLD.

**FOR SALE, ONE NEW 48-INCH BY 22 FEET HORIZONTAL VULCANIZER,** with patent hinge door; 66-inch by 14 feet upright butt strapped boiler, 125 pounds steam, any state; 14 inch and 12 inch by 16 horizontal engines; cheap. Located Toledo, Ohio. Address Box No. 8032, care of THE INDIA RUBBER WORLD.

### RUBBER MACHINERY FACTORY OVERSTOCKS

On Hand for Immediate Shipment  
MIXING MILLS  
CEMENT CHURNS

VULCANIZERS  
SPREADERS

LAWRENCE N. BARRY

10 Alden Street

Boston, Mass.

### Rubber Mill Machinery For Sale

Large quantity of rubber mill machinery for sale cheap, regardless of cost. We have no prices on our machinery. Are overhauled and want to unload.

Have over 75 mills, calenders, and crackers of all sizes to pick from, presses of all kinds, belt press, tire vulcanizers, hydraulic pumps, steam pumps, accumulators, tire flap making machinery, boilers, stacks, etc. Guaranteed and unguaranteed machinery, rebuilt machinery and all parts of rubber mill machinery.

Come and see me if you want a bargain in A-1 rubber mill machinery of any kind. Will sell cheap for cash to unload.

PHILIP McGRORY

75 Pashley Avenue

Trenton, N. J.

Please Index Our Name For—

**NEW and USED RUBBER  
MACHINERY and EQUIPMENT**

SLITTING MACHINES, ACCUMULATORS, BIAS CUTTERS, MASTICATORS, VULCANIZERS, CALENDERS, SPREADERS, REFINERS, WASHERS, PRESSES, TUBERS, CHURNS, DRIERS, MILLS.

*Surplus Trading Corporation*  
104 Parkhurst St. Tel. Terrace 1848 Newark, N. J.

Specializing in  
Entire Plants and  
Factory Overstocks,

Mill Ends, Remnants,  
Sheeting, Fabrics, Liners,  
Shoddy, Crude and Com-  
pounded Rubber and Chemicals.

Merchandise of all Descriptions Bought  
and Sold.

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For sale or  
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(8003)ERY, MILL  
variable speed.  
ock anywhere.  
UBBER WORLD.S. TUBING  
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DIGESTERS,  
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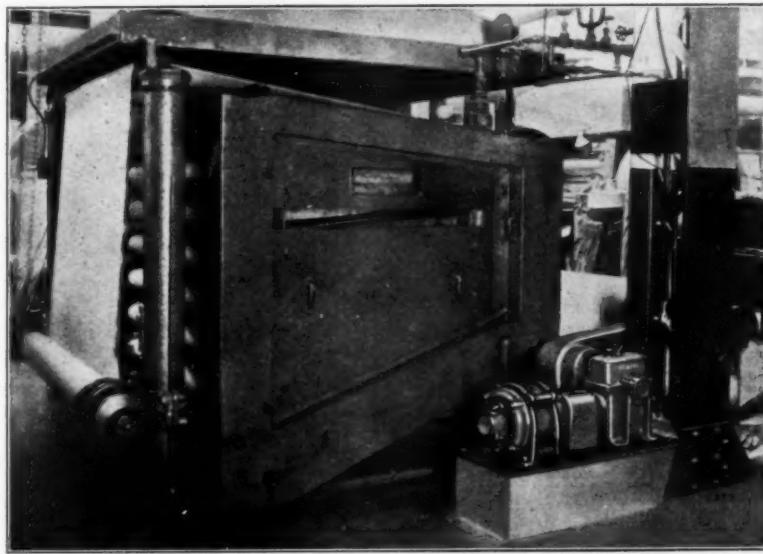
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# De Laval

## Worm Reduction Gear

### A Superior Speed Reducer

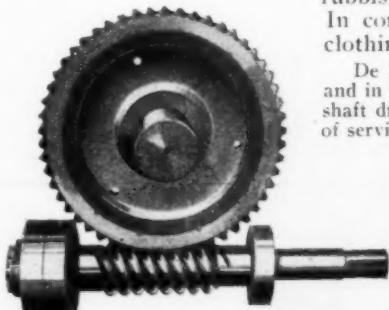


1160 r.p.m., 3 hp. motor, driving fabric dryer through De Laval worm reduction gear;  
ratio 19½ to 1.

### Simplifies Motor Drives

PRACTICALLY all rubber machinery runs at speeds far below standard motor speeds, but in the De Laval Worm Reduction Gear you have a superior, efficient and reliable speed reducer which is exceedingly simple and occupies little space. In fact, due to the right angle arrangement, the motor itself can usually be located out of the way. The only moving parts are the worm, worm wheel and ball bearings, all of which are enclosed and self lubricating, so that no attention is required further than to keep the oil well filled to the proper level. The gear offers no place for the accumulation of dirt and rubbish and does not stir up dust nor interfere with lighting, as do belts. In contrast with open gearing and chains, it is silent and cannot catch clothing. The efficiency is high and there is correspondingly little wear.

De Laval Worm Reduction Gears are built for all ratios up to 100 to 1 in one step, and in two steps for all higher ratios, also for right or left hand drive and for vertical shaft drive. State horsepower and speeds of driving and driven machines, and nature of service. Ask for Catalog R-85.



The moving parts of a De Laval worm reduction gear.

**De Laval**  
Steam Turbine Co., Trenton, N.J.

Local Offices: Atlanta, Boston, Charlotte, Chicago, Cleveland, Dallas, Denver, Duluth, Helena, Houston, Indianapolis, Kansas City, Los Angeles, Montreal, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., St. Paul, Salt Lake City, San Francisco, Seattle, Toronto, Vancouver.

Manufacturers of Steam Turbines, Centrifugal Pumps, Centrifugal Blowers and Compressors, Double Helical Speed Reducing Gears, Worm Gears, Hydraulic Turbines, Flexible Couplings and Special Centrifugal Machinery

## Small Advertisement Department—Continued

### MACHINERY AND SUPPLIES FOR SALE—Cont.

FOR SALE: 8-INCH BY 24-INCH BIRMINGHAM MOTOR DRIVE MILL. 18-inch four roll calender with extra rolls. Peerless rubber cutter. 20 by 22-inch and 22 by 24-inch hand presses with stands. 48-inch by 14-foot q.o. door vulcanizer, complete with all accessories. Address Box No. 8012, care of THE INDIA RUBBER WORLD.

### PRESSES FOR RUBBER TILE FLOORING, MECHANICAL MOLDED GOODS AND TOP LIFTING.

Three Allen presses 42 by 42, three and four openings; 14-inch ram, especially built steel ram, pot, swinging tables. Offered at a low price. Address Box No. 8030, care of THE INDIA RUBBER WORLD.

### NOTICE TO RUBBER RECLAIMERS

Vulcanizers, 4 feet diameter by 8 feet long, up to 7 feet diameter and 50 feet long. Mixing mills, 16 by 40. Calenders, 12 by 30 and 24, up to 24 by 66. Tubing machines, up to 10-inch. Also refiners and cracker mills. Address Box No. 8044, care of THE INDIA RUBBER WORLD.

### MACHINERY AND SUPPLIES WANTED

WANTED: THREE (3) VACUUM DRIERS. Two (2) heavy duty mixers. A few steel rolls.

Address Box No. 8010, care of THE INDIA RUBBER WORLD.

WANTED: EMBOSsing CALENDER 45-INCH PREFERRED. PAPER roll 20-inch or more in diameter. Give details and price. Address Box No. 8018, care of THE INDIA RUBBER WORLD.

## FOR SALE Rubber Mill Equipment

Cameron, 62" Slitting Machine with Motor Drive. Bridgewater Bead Trimmer. Three—Tubing Machines and Motors, 2-Inch, 4½-Inch and 6-Inch Sizes. Two—Skiving Machines. Five—Patterson and one Day Cement Mixers. One—22x66" Three-Roll Calender, Complete with Motor Drive. Two—48"x12' Southwark Tire Vulcanizers. One—62"x12' Southwark Tire Vulcanizer. Hunter Dry Kiln, Complete. Devine Vacuum Drier and Pump. Two—Hydraulic Pumps and Accumulators. Three—Spiral Bead Molds. Gammeter Steel Calender Shells. Stromberg Electric Time Clock System. 250 h.p. Corliss Engine. Molds and Cores. Textile Co. Eight-Roll Fabric Drying Machine. Three—44" Hydraulic Presses. Farrell 6x13" Experimental Mill and Calender with Motor Drive. Williams Experimental Vulcanizer, 18"x24". Freas Electric Oven, 600 watts, 110 volts. Scott Fabric and Rubber Testing Machine. Peerless Rubber Cutter.

Bookboards, tire trucks, and other miscellaneous tire and rubber manufacturing equipment of an eastern rubber factory, now being dismantled. All equipment is practically new, most of it never having been put in service.

C. O. COREY

P. O. Box 384,  
ELIZABETH, N. J.

### MISCELLANEOUS

RUBBER FORMULAS FOR BALLOON TIRES, INNER TUBES, SOLID tires, cements, battery jars, heel and sole stocks, sponge rubber, balls, air-drying cement, tire dough, air bags, and dipped goods. Write for our list. Rubber Compound Bureau, 727 Second National Building, Akron, Ohio. (7949)

### Headquarters for

### FIRST CLASS

## Rubber Machinery and Equipment

L. ALBERT & SON

TRENTON  
NEW JERSEY

## ATTENTION

We Have the Largest Stock and Finest Selection of New and Used

### RUBBER MACHINERY

which we have accumulated from various plants we have recently dismantled.

Calenders, Mills, Presses, Vulcanizers, Tubers, Spreaders, Pumps, Accumulators, Churns—At remarkably low prices.

*Know Us by Our Past Performances*

### United Rubber Machinery Exchange

311-317 MT. PLEASANT AVE. NEWARK, N. J.

*The Only Text-Book of a Great Industry*

## PNEUMATIC TIRES

Automobile, Truck, Airplane, Motorcycle, Bicycle

*An Encyclopedia of Tire Manufacture, History, Processes, Modern Repair, Rebuilding, Patents, etc.*

50 Chapters; Over 1300 Pages and 900 Illustrations

By HENRY C. PEARSON, F.R.G.S.  
Editor of The India Rubber World

**PRICE \$12.00**

*Descriptive circular and table of contents on request*

**The India Rubber Publishing Co.**  
25 West 45th St., New York, N. Y.

**THE JOHNSON FRICTION CLUTCH**  
**For Reverse Drives  
 On Rubber Machinery**

By installing the Johnson Clutch between bevel gears on rubber machines you can obtain reverse motion. Spur gears are often used to get two speeds on a machine. Long experience shows that these drives give entire satisfaction.



Double Clutch—Exterior

You install the Johnson Clutch on the countershaft. One pulley is mounted on each hub of the clutch. Thus through one open belt and one crossed belt the operation of a machine is reversed. Equip your rubber machines and your lineshafts with Johnson Clutches.

*Write for Catalog "RU."*

**THE CARLYLE JOHNSON MACHINE CO.** MANCHESTER, CONN.

**Adolph Hirsch & Co., Inc.**  
 Importers and dealers in  
**CRUDE RUBBER**  
 OF ALL DESCRIPTIONS  
 Brazil Manicoba, and Sheet Rubber, Crude  
 and Washed, Our Specialty.  
 Direct Receivers of Eastern Plantation Rubber.  
**53-63 Park Row** - New York  
 Telephone: 2514 Bookman. Table address: Adhirsch.

**RECLAIMED RUBBER**  
**HIGH QUALITIES**  
**UNIFORM GRADES**  
**"STANDARDIZED"**  
**VULCAN RECOVERY CO.**  
 Trenton New Jersey



**23 DAY PARAGON MIXERS**

*Handle Rubber Cement in Duratex Plant*

The equipment of the churning room in which the sheeted rubber is dissolved or mixed with varnish makers' or painters' naphtha, consists of a battery of multiple operated DAY Paragon Mixers. Rubber and solvent introduced through hand hole openings at top of mixers. Cement is drawn off at bottom of cans.

**The J. H. Day Co., Cincinnati, O.**  
 Offices in 16 Principal Cities of the Country



DAVIDSON SEAL  
 GUARANTEES  
 QUALITY

**DAVIDSON RUBBER  
 COMPANY**

Boston - - - Mass.

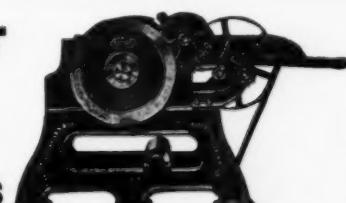
*Manufacturers of*  
**"THE BANNER LINE  
 OF FAST SELLERS"**

Water Bottles, Fountain  
 Syringes and Baby Nipples

**Rubber**



**Scrap Cutters**



Will Properly Cut Up Your Rubber Scrap  
 Make the Work Easier for the Cracker.

**TAYLOR, STILES & COMPANY, Riegelsville, N.J.**  
 R. J. MARX, 133 Finsbury Pavement, LONDON, E. C., ENGLAND  
 Sole Agent for Europe

# LE CAOUTCHOUC & LA GUTTA-PERCHA

SCIENTIFIC and TECHNICAL JOURNAL

## Official Organ of the French Rubber Industry

RUBBER AND GUTTA-PERCHA, CRUDE, MANUFACTURED AND  
ALLIED INDUSTRIES

WIRES AND CABLES, VULCANIZED FIBRE, EBONITE, TYRES,  
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GOODS, INSULATING MATERIALS, CELLULOID, BAKELITE,  
PLASTIC MASSES, ARTIFICIAL SILK, ETC.

PUBLISHED MONTHLY on the 15th

22nd YEAR.

ANNUAL SUBSCRIPTION 40 FRANCS.

*Editorial & Commercial Offices—49, Rue des Vinaigriers, PARIS (X).*

## Crude Rubber and Compounding Ingredients

By HENRY C. PEARSON, F. R. G. S.

*Editor of THE INDIA RUBBER WORLD*

Third revised edition of this standard work on the technology of crude rubber  
and rubber goods manufacture brought up to date

This Book covers the latest developments of the industry, such as the Preparation of Plantation Rubber, Organic Accelerators, Synthetic Rubber, Vulcanization without Sulphur, Reclaimed Rubber and its Uses, Physical Testing, Analytic Methods, Specifications for Rubber Goods. Of special value are the many typical compounds grouped under the various divisions of rubber manufacture.

This the most widely and constantly used text-book in the rubber manufacturing trade tells the whole story of crude rubber, its kinds, grades, characteristics and methods of preparation. It discusses rubber substitutes and pseudo gums. It describes all the chemicals and materials with which rubber is compounded. It details the primary and vulcanization processes in rubber goods manufacture, and outlines typical methods and compounds in the numerous divisions of the industry. There is a comprehensive chapter devoted to gutta percha and its many uses. A complete index facilitates ready reference and renders this hand-book indispensable to every practical rubber worker. Cloth-bound 422 pages.

*Complete table of contents on request.*

Price, postpaid, \$10.00

The India Rubber Publishing Co.

25 W. 45th St., New York, N.Y.

## Terkelsen New Model I-G Tire Wrapping Machine

We now introduce to the tire trade our new model

### 1-G

### Tire Wrapping Machine

This machine has all the efficiency and simplicity of our model

### 1-F

### with several new features

Model 1-G      30x3 to 7.30  
Balloon

Model 4      Truck Tires  
Model 8      For Dealers  
and Branches

Now on Exhibition at Akron, Ohio



**One of the new features:**  
An automatic, self applying and cutting off taping attachment.

The tape is applied and cut off WITHOUT THE ASSISTANCE OF OPERATOR and is no hindrance to production. Attachment is contained within the machine; takes no additional floor space. Tire passes in machine at one side and out the other.

You are protected by United States Court decision of May 5th 1925.

Now on Exhibition at Akron, Ohio

**Terkelsen Machine Company, Terkelsen Building, Boston, Mass.**

## THE CONSULTING COMPANY

2802 Union Central Building, Cincinnati

Will furnish plans and specifications for your building.  
Advise as to machinery and equipment needed.  
Supply complete layout of plant.  
Superintend entire work of construction.  
Mechanical ability of our experts is of the highest order.  
Practical knowledge of Rubber manufacturing.

THE CONSULTING COMPANY.

## MAGNESIA

**WHITTAKER, CLARK & DANIELS, Inc.**

250 Front Street, New York

## ARCHER RUBBER CO. Manufacturers Royal Archer Lines

Piano and Organ Cloths

Rubber Tubings

Hospital Sheetings and Blankets

Nursery Sheetings and Crib Blankets

Rubber Surface Clothing

Aprons, Ponchos, Rubber Fabrics

Rubberizing for the Trade

Factory and Main Office,      MILFORD, MASS.



**MANUFACTURERS OF**  
SENSATION BELT, WATER, STEAM AND AIR HOSE, RUB-STEEL VALVES,  
AND A GENERAL LINE OF MECHANICAL RUBBER GOODS OF ULTIMATE  
ECONOMY.

MAIN OFFICE AND WORKS  
Jersey City, N. J.

New York:  
287 Broadway

# BUYERS' DIRECTORY OF THE RUBBER TRADE.

Classified List of Manufacturers and Dealers in India-Rubber Goods and Rubber Manufacturers' Supplies.

## MECHANICAL RUBBER GOODS.

### Mechanical Goods Generally.

Acme Rubber Mfg. Co., Trenton, N. J.  
Archer-Strauss Rubber Co., Framingham, Mass.  
Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Canfield, H. O., Co., Bridgeport, Conn.  
Canfield Rubber Co., Bridgeport, Conn.  
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.  
David Rubber Co., Providence, R. I.  
Ekhart Rubber Works, Ekhart, Ind.  
Essex Rubber Co., Trenton, N. J.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., New York.  
Hale, Alfred, Rubber Co., Atlantic, Mass.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., N. Y.  
Pirelli, Milan, Italy.  
Quaker City Rubber Co., Phila., Pa.  
Stokes, Jos., Rubber Co., Trenton, N. J.  
Thermoid Rubber Co., Trenton, N. J.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.  
Woven Steel Hose & Rubber Co., Trenton, N. J.

### Belting.

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Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.  
Empire Tire & Rubber Corp., Trenton, N. J.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., New York, N. Y.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., New York.  
Quaker City Rubber Co., Philadelphia.  
Thermoid Rubber Co., Trenton, N. J.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

### Billiard Cushions.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Cincinnati R. M. Co., Cincinnati, O.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., New York.  
United States Rubber Co., New York.

### Blankets—Printers'

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City, N. J.

### Brake Lining—Asbestos.

Manhattan Rubber Mfg. Co., Passaic, N. J.  
Thermoid Rubber Co., Trenton, N. J.  
Woven Steel Hose & Rubber Co., Trenton, N. J.

### Brushes.

Canfield Rubber Co., Bridgeport, Conn.  
Western Rubber Co., Goshen, Ind.

### Buffers and Springs.

Acme Rubber Mfg. Co., Trenton, N. J.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Canfield Rubber Co., Bridgeport, Conn.  
Cincinnati R. M. Co., Cincinnati, O.  
Essex Rubber Co., Trenton, N. J.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., N. Y.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

### Card Cloths.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Mechanical Fabric Co., Providence, R. I.

For Complete Addresses See Advertisements—Index Page 110

### Cord (Pure Rubber).

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canfield Rubber Co., Bridgeport, Conn.  
Davol Rubber Co., Providence, R. I.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., New York.  
Quaker City Rubber Co., Philadelphia.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

### Door Springs.

Canfield Rubber Co., Bridgeport, Conn.  
Manhattan Rubber Mfg. Co., Passaic, N. J.

### Experimental Work.

Manhattan Rubber Mfg. Co., Passaic, N. J.  
Maywald, F. J., Dr., Belleville, N. J.

### Flooring

Murray Rubber Co., Trenton, N. J.  
United States Rubber Co., New York.

### Fruit Jar Rings.

Acme Rubber Mfg. Co., Trenton, N. J.  
Boston Woven Hose & Rubber Co., Cambridge, Mass.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Canfield Rubber Co., Bridgeport, Conn.

Cincinnati Rubber Mfg. Co., Cincinnati, O.

Gutta Percha and Rubber, Limited, Toronto, Canada.

Manhattan Rubber Mfg. Co., Passaic, N. J.

New York Belting & Packing Co., N. Y.

United States Rubber Co., New York.

Western Rubber Co., Goshen, Ind.

### Gas-Bags (Rubber).

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Davol Rubber Co., Providence, R. I.

Seamless Rubber Co., New Haven, Conn.

Voorhees Rubber Mfg. Co., Jersey City.

### Gaskets, Gasket Rings, Tubing and Washers.

Boston Woven Hose & Rubber Co., Cambridge, Mass.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Canfield, H. O., Co., Bridgeport, Conn.

### Gaskets, Gasket Rings, Tubing and Washers—Continued.

Essex Rubber Co., Trenton, N. J.  
Gutta Percha & Rubber Mfg. Co., New York.  
Gutta Percha & Rubber, Ltd., Toronto, Canada.

Hewitt Rubber Co., Buffalo, N. Y.

Home Rubber Co., Trenton, N. J.

Manhattan Rubber Mfg. Co., Passaic, N. J.

New York Belting & Packing Co., New York.

Quaker City Rubber Co., Philadelphia.

United States Rubber Co., New York.

Voorhees Rubber Mfg. Co., Jersey City, N. J.

Western Rubber Co., Goshen, Ind.

### Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.

Gutta Percha and Rubber, Limited, Toronto, Canada.

### Hat Bags.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Manhattan Rubber Mfg. Co., Passaic, N. J.

Murray Rubber Co., Trenton, N. J.

New York Belting & Packing Co., N. Y.

United States Rubber Co., New York.

Voorhees Rubber Mfg. Co., Jersey City.

### Horse Shoe Pads.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Essex Rubber Co., Trenton, N. J.

Western Rubber Co., Goshen, Ind.

### Hose—Armored.

Woven Steel Hose & Rubber Co., Trenton, N. J.

### Hose Bands, Straps and Menstrum.

Boston Woven Hose & Rubber Co., Cambridge, Mass.

Manhattan Rubber Mfg. Co., Passaic, N. J.

Western Rubber Co., Goshen, Ind.

Verdon, William, Fort Plain, N. Y.

### Hose—Radiator.

Eclat Rubber Co., The, Cuyahoga Falls, Ohio.

### Hose—Rubber.

Air Brake, Fire, Garden, Pneumatic, Suction, Submarine, Vacuum, Dredging Sleeves.

Acme Rubber Mfg. Co., Trenton, N. J.

Boston Woven Hose & Rubber Co., Cambridge, Mass.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.



# What the Firestone Record Means to Dealers!

The Firestone 25th Anniversary emphasizes again the value of the Firestone Dealer franchise.

Firestone's yearly sales have grown consistently year by year from \$100,000 to \$100,000,000. This healthy expansion is based on the Company's consistent policy of helping its dealers to make money—and always producing a quality product to build bigger business for the future.

Firestone's policy keeps its dealers fully advised of conditions in the industry. Its national advertising is big and broad-gauged. Firestone works closely with each dealer on merchandising problems, co-operating on local

advertising and supplying efficient sales helps.

The epochal success of the Balloon Tire—first put on the market by Firestone—is a recent example of this leadership. Due to Firestone's extra process of Gum-Dipping—which builds extra strength and flexing endurance into cord tires—Firestone's Balloon Changeover Unit and its simplified system of balloon repair gives definite advantages to its dealers both in increased sales volume and greater profits.

It pays to become part of an institution such as this. It assures permanence for the future. Write the nearest branch today.

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## FULL-SIZE GUM-DIPPED BALLOONS

AMERICANS SHOULD PRODUCE THEIR OWN RUBBER . . . *Firestone*

## RUBBER BUYERS' DIRECTORY—Mechanical Rubber Goods

**Hose—Rubber—Continued.**

Gutta Percha & Rubber, Ltd., Toronto.  
Gutta Percha & Rubber Mfg. Co., New York.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., New York.  
Quaker City Rubber Co., Philadelphia, Pa.  
Thermoid Rubber Co., Trenton, N. J.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City, N. J.  
Western Rubber Co., Goshen, Ind.  
Woven Steel Hose & Rubber Co., Trenton, N. J.

**Hose Pipes, Nozzles, Couplings, Clamps, Fittings, Racks and Reels.**

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
N. Y. Belting & Packing Co., New York.  
Southwark Foundry & Machine Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Woven Steel Hose & Rubber Co., Trenton, N. J.

**Hose—Rubber Lined.***Cotton and Linen.*

Acme Rubber Mfg. Co., Trenton, N. J.  
Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Cincinnati Rubber Mfg. Co., Cincinnati, O.  
Fabric Fire Hose Co., New York.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
Stokes, Jas., Rubber Co., Trenton, N. J.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Woven Steel Hose & Rubber Co., Trenton, N. J.

**Hose Linings.**

Boston Woven Hose & Rubber Co., Cambridge, Mass.

**Hose Linings—Continued.**

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., New York.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., New York.  
Quaker City Rubber Co., Philadelphia.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.

**Lawn Sprinklers.**

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

**Mallets (Rubber).**

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

**Matting—Carriage Mats and Stair Treads.**

Acme Rubber Mfg. Co., Trenton, N. J.  
Boston Woven Hose & Rubber Co., Cambridge, Mass.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Cincinnati R. M. Co., Cincinnati, O.

Essex Rubber Co., Trenton, N. J.

Gutta Percha & Rubber, Ltd., Toronto, Canada.

Gutta Percha & Rubber Mfg. Co., New York.

Home Rubber Co., Trenton, N. J.

Manhattan Rubber Mfg. Co., Passaic, N. J.

Murray Rubber Co., Trenton, N. J.

New York Belting & Packing Co., N. Y.

Quaker City Rubber Co., Philadelphia, Pa.

United States Rubber Co., New York.

Voorhees Rubber Mfg. Co., Jersey City.

Western Rubber Co., Goshen, Ind.

**Mold Work.**

(See Mechanical Rubber Goods.)

Acme Rubber Mfg. Co., Trenton, N. J.  
Canfield, H. O. Co., Bridgeport, Conn.  
Manhattan Rubber Co., Bridgeport, Conn.  
Cincinnati R. M. Co., Cincinnati, O.

**Mold Work—Continued.**

Davol Rubber Co., Providence, R. I.  
Elkhart Rubber Works, Elkhart, Ind.  
Essex Rubber Co., Trenton, N. J.  
Gutta Percha & Rubber Mfg. Co., New York.  
Gutta Percha & Rubber, Ltd., Toronto.  
Hale, Alfred, Rubber Co., Atlantic, Mass.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., New York.

Quaker City Rubber Co., Philadelphia.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.

**Oil Well Supplies.**

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Hewitt Rubber Co., Buffalo, N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.

Western Rubber Co., Goshen, Ind.  
White, R. M. Dental Mfg. Co., The Philadelphia, Pa.

**Packing.**

(See Mechanical Rubber Goods.)

Boston Woven Hose & Rubber Co., Cambridge, Mass.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

Cincinnati Rubber Mfg. Co., Cincinnati, O.

Elkhart Rubber Works, Elkhart, Ind.

Emex Rubber Co., Trenton, N. J.

Gutta Percha and Rubber, Limited, Toronto, Canada.

Gutta Percha & Rubber Mfg. Co., New York.

Home Rubber Co., Trenton, N. J.

Manhattan Rubber Mfg. Co., Passaic, N. J.

Murray Rubber Co., Trenton, N. J.

New York Belting & Packing Co., New York.

Quaker City Rubber Co., Philadelphia, Pa.

United States Rubber Co., New York.

Voorhees Rubber Mfg. Co., Jersey City.

Western Rubber Co., Goshen, Ind.

**Paper Machine Rolls and Deckle Straps.**

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Farrel Foundry & Machine Co., New Haven, Conn.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., N. Y.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.

**Paving.**

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
Manhattan Rubber Mfg. Co., Passaic, N. J.

**Plumbers' Supplies.**

Force Cups, Fuller Balls.  
Acme Rubber Mfg. Co., Trenton, N. J.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Canfield Co., H. O., Bridgeport, Conn.  
Canfield Rubber Co., Bridgeport, Conn.  
Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.  
Davol Rubber Co., Providence, R. I.  
Elkhart Rubber Works, Elkhart, Ind.  
Essex Rubber Co., Trenton, N. J.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Home Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Western Rubber Co., Goshen, Ind.

**Rolls—Rubber Covered.**

Acme Rubber Mfg. Co., Trenton, N. J.  
Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Cincinnati R. M. Co., Cincinnati, O.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Gutta Percha & Rubber Mfg. Co., N. Y.  
Home Rubber Co., Trenton, N. J.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

**Sewing Machine Rubbers.**

Canfield Rubber Co., Bridgeport, Conn.  
Manhattan Rubber Mfg. Co., Passaic, N. J.  
Western Rubber Co., Goshen, Ind.

**Specialties.**

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
Davol Rubber Co., Providence, R. I.  
Faultless Rubber Co., Ashland, Ohio.  
Manhattan Rubber Mfg. Co., Passaic, N. J.

**Tiling.**

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Gutta Percha and Rubber, Limited, Toronto, Canada.  
Hewitt Rubber Co., Buffalo, N. Y.  
Murray Rubber Co., Trenton, N. J.  
New York Belting & Packing Co., N. Y.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.  
Voorhees Rubber Mfg. Co., Jersey City.  
Western Rubber Co., Goshen, Ind.

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Co., Ltd.,  
Limited.

# CARBON BLACK

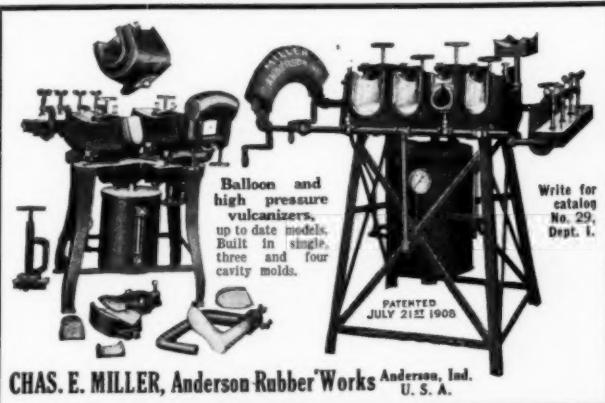
An inert pigment which smoothes and toughens tire compounds and materially lessens claims for adjustments.

Equally adapted to other compounds where durability and resiliency are required.

## SEAVER & CO.

Established  
1882

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**RUBBER HEEL BURRS  
FLAT and CUPPED**  
Buy the Burrs with  
**CENTRAL HOLES**

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East Street, Bristol, Connecticut U. S. A.

### You Get the Biggest Return



In all the desirable elements of Hose Service when you buy "YERDON'S" CAST BRASS HOSE BANDS.

Made of a Special, RUST-PROOF, composition metal, exceptionally strong and durable, they hold the hose firmly with a double, all-around "Grip" assuring a permanently tight connection. They can be used repeatedly and will be right on the job doing efficient work long after others are scrapped and forgotten.

ALL sizes for hose  $\frac{1}{2}$ " O. D. up to the largest Suction Hose. Most satisfactory on automobile hose connections. Made in Fort Plain, U. S. A. Used everywhere. Unequalled by any.

We solicit your stock orders. If you don't know them write for samples. Both Home and Foreign trade supplied.

WILLIAM YERDON, Dept. C, Fort Plain, N. Y.

## Materials for Rubber Industries

THE  
H. J. ADAMS COMPANY  
Second National Building AKRON, OHIO

## Seamless

*A mark of quality on rubber goods  
since 1877*

Rubber Druggists' Sundries  
Rubber Toys and Novelties  
Rubber Sporting Goods  
Bathing Caps  
Zinc Oxide Adhesive Plaster  
Surgical Supplies  
Surgeons' Gloves  
Household Gloves  
Industrial Gloves  
Tubing  
Nipples  
Hard Rubber Combs

**The Seamless Rubber Co., Inc.**  
NEW HAVEN, CONNECTICUT

*Send for Catalogue*

## RUBBER BUYERS' DIRECTORY—Mechanical Rubber Goods, Druggists' and Stationers' Sundries.

## Tubing.

(See Mechanical Rubber Goods.)  
 Acme Rubber Mfg. Co., Trenton, N. J.  
 American Hard Rubber Co., New York.  
 Archer Rubber Co., Milford, Mass.  
 Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Cincinnati R. M. Co., Cincinnati, O.  
 Davidson Rubber Co., Boston, Mass.  
 Davol Rubber Co., Providence, R. I.  
 Essex Rubber Co., Trenton, N. J.  
 Faultless Rubber Co., Ashland, Ohio.  
 Gutta Percha & Rubber, Ltd., Toronto, Canada.  
 Home Rubber Co., Trenton, N. J.  
 Gutta Percha & Rubber Mfg. Co., New York.  
 Manhattan Rubber Mfg. Co., Passaic, N. J.  
 New York Belting & Packing Co., New York.  
 Quaker City Rubber Co., Philadelphia, Pa.  
 Seamless Rubber Co., Inc., The, New Haven, Conn.  
 United States Rubber Co., New York.  
 Voorhees Rubber Mfg. Co., Jersey City, N. J.  
 Western Rubber Co., Goshen, Ind.

## Valve Discs.

American Hard Rubber Co., New York.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Cincinnati R. M. Co., Cincinnati, O.  
 Gutta Percha and Rubber, Limited, Toronto, Canada.  
 Hewitt Rubber Co., Buffalo, N. Y.  
 Home Rubber Co., Trenton, N. J.  
 Manhattan Rubber Mfg. Co., Passaic, N. J.  
 New York Belting & Packing Co., N. Y.  
 Quaker City Rubber Co., Philadelphia, Pa.  
 Seamless Rubber Co., Inc., The, New Haven, Conn.  
 United States Rubber Co., New York.  
 Western Rubber Co., Goshen, Ind.

## Valves.

(See Mechanical Rubber Goods.)  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Elkhart Rubber Works, Elkhart, Ind.  
 Essex Rubber Co., Trenton, N. J.  
 Gutta Percha & Rubber Mfg. Co., New York.  
 Gutta Percha and Rubber, Limited, Toronto, Canada.  
 Hewitt Rubber Co., Buffalo, N. Y.  
 Manhattan Rubber Mfg. Co., Passaic, N. J.  
 New York Belting & Packing Co., New York.  
 Quaker City Rubber Co., Philadelphia, Pa.  
 United States Rubber Co., New York.

## Valves—Continued.

Voorhees Rubber Mfg. Co., Jersey City, N. J.  
 Western Rubber Co., Goshen, Ind.

Valve Balls—Condensor, Cold and Hot Water.

Hewitt Rubber Co., Buffalo, N. Y.  
 Home Rubber Co., Trenton, N. J.  
 Quaker City Rubber Co., Philadelphia, Pa.  
 Western Rubber Co., Goshen, Ind.

Vulcanized Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic, N. J.  
 New York Belting & Packing Co., New York. (Vulcanite.)  
 United States Rubber Co., New York.

## Wringer Rolls.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Cincinnati R. M. Co., Cincinnati, O.  
 Gutta Percha and Rubber, Limited, Toronto.  
 New York Belting & Packing Co., N. Y.  
 United States Rubber Co., New York.  
 Western Rubber Co., Goshen, Ind.

## DRUGGISTS' AND STATIONERS' SUNDRIES.

## Atomizers.

## Bandages.

## Bulbs.

## Nipples.

## Syringes.

## Water Bottles.

## Druggists' Sundries, Generally

American Hard Rubber Co., New York.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davidson Rubber Co., Boston, Mass.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Pirelli, Milan, Italy.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.  
 Whitall Tatum Co., New York.

## Air Goods.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davol Rubber Co., Providence, R. I.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.  
 Whitall Tatum Co., N. Y.

## Balloons (Toy).

Faultless Rubber Co., Ashland, Ohio.

## Balls, Dolls and Toys.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Essex Rubber Co., Trenton, N. J.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., The, New Haven, Conn.  
 United States Rubber Co., New York.

## Bathing Caps.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Kleinert, I. B., Rubber Co., The, New York.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Bulbs.

Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.  
 Whitall Tatum Co., New York.

## Combination Fountain Syringe and Hot Water Bottle Fixtures.

Brass Goods Mfg. Co., Brooklyn, N. Y.  
 Davidson Rubber Co., Boston, Mass.

## Combs.

American Hard Rubber Co., New York.  
 Seamless Rubber Co., Inc., The, New Haven, Conn.  
 Vulcanized Rubber Co., New York.

## Electricians' and Surgeons' Gloves.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Erasive Rubbers.

Faultless Rubber Co., Ashland, Ohio.

## Finger Cots.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.  
 Whitall Tatum Co., N. Y.

## Fountain Syringes.

Davidson Rubber Co., Boston, Mass.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 United States Rubber Co., New York.

## Gutta-Percha Tissue.

Bemis Associates, Inc., Watertown, Mass.

## Hard Rubber Goods.

American Hard Rubber Co., New York.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davol Rubber Co., Providence, R. I.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 Stokes, Joseph, Rubber Co., Trenton, N. J.  
 United States Rubber Co., New York.  
 Vulcanized Rubber Co., New York.  
 White, S. S. Dental Mfg. Co., The, Philadelphia, Pa.

## Hard Rubber Syringe Fittings

Davidson Rubber Co., Boston, Mass.

## Hospital Sheetings.

Archer Rubber Co., Milford, Mass.  
 Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Hale, Alfred, Rubber Co., Atlantic, Mass.  
 Kleinert, I. B., Rubber Co., The, New York.  
 Meade Rubber Co., Stoughton, Mass.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 Seamless Rubber Co., Inc., The, New Haven, Conn.  
 United States Rubber Co., New York.

## Hot Water Bottles, Throat Bags, Ice Bags and Ice Bag Caps.

Brass Goods Mfg. Co., Brooklyn, N. Y.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davidson Rubber Co., Boston, Mass.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

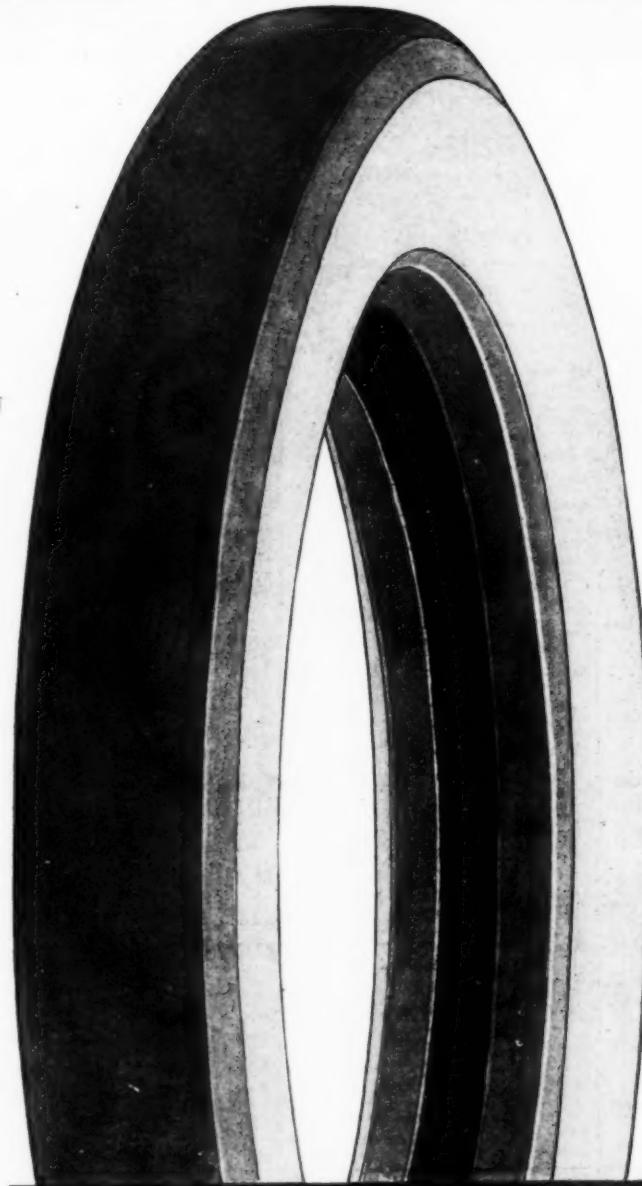
## Whitall Tatum Co., N. Y.

## Life Preservers.

Davol Rubber Co., Providence, R. I.  
 United States Rubber Co., New York.

## Nipples.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davidson Rubber Co., Boston, Mass.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.  
 Whitall Tatum Co., N. Y.



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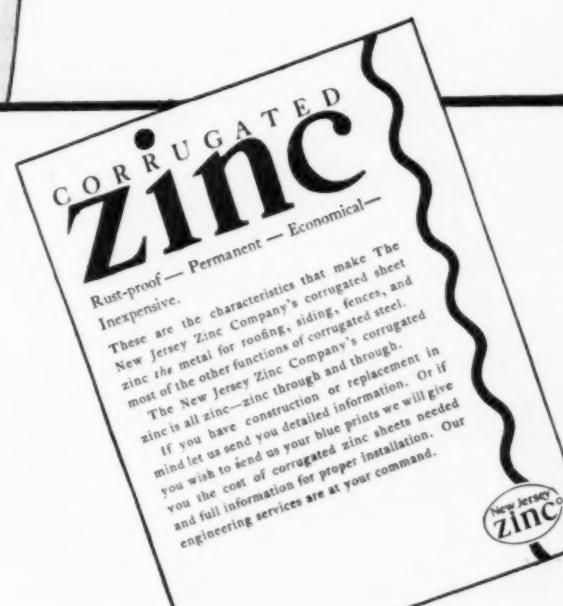
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Druggists' and Stationers' Sundries, Mackintoshed and Surface Goods, Rubber Footwear, Dental and Stamp Rubber, Electrical.

## Rubber Bands

Daval Rubber Co., Providence, R. I.  
 Easthampton Rubber Thread Co., Easthampton, Mass.  
 Empire Tire & Rubber Corp., Trenton, N. J.  
 Murray Rubber Co., Trenton, N. J.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Shower Bath Sprinklers.

Brass Goods Mfg. Co., Brooklyn, N. Y.  
 Davol Rubber Co., Providence.  
 Hodgman Rubber Co., Tuckahoe, N. Y.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Sponges.

Faultless Rubber Co., Ashland, Ohio.  
 United States Rubber Co., New York.

## Stationers' Sundries.

American Hard Rubber Co., New York.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Cincinnati Rubber Mfg. Co., Cincinnati, Ohio.  
 Davol Rubber Co., Providence, R. I.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Stoppers (Hard Rubber)

Davidson Rubber Co., Boston, Mass.

## Stoppers (Metal)

Brass Goods Mfg. Co., Brooklyn, N. Y.

## Stoppers (Rubber)

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Faultless Rubber Co., Ashland, Ohio.  
 New York Belting & Packing Co., N. Y.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Thread.

Easthampton Rubber Thread Co., Easthampton, Mass.  
 Mechanical Fabric Co., Providence, R. I.  
 United States Rubber Co., New York.

## Tobacco Pouches.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 United States Rubber Co., New York.

## MACKINTOSHED AND SURFACE GOODS.

## Airplane and Balloon Cloths.

United States Rubber Co., New York.

## Air Mattresses.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Davol Rubber Co., Providence, R. I.  
 United States Rubber Co., New York.

## Aprons—Rubber.

Archer Rubber Co., Milford, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Kleinert, I. B., Rubber Co., The, New York.  
 Schwarzwaelder Co., The, Philadelphia, Pa.  
 United States Rubber Co., New York.

## Bellows Cloths.

Archer Rubber Co., Milford, Mass.  
 Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Clifton Manufacturing Co., Boston, Mass.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 United States Rubber Co., New York.

## Bibs.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Kleinert, I. B., Rubber Co., The, New York.  
 Seamless Rubber Co., Inc., New Haven, Conn.  
 United States Rubber Co., New York.

## Blankets—Camp and Hospital.

Archer Rubber Co., Milford, Mass.  
 Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Clifton Manufacturing Co., Boston, Mass.  
 United States Rubber Co., New York.

## Calendering.

Archer Rubber Co., Milford, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 United States Rubber Co., New York.

## Carriage Ducks and Drills.

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Clifton Manufacturing Co., Boston, Mass.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 United States Rubber Co., New York.

## Clothing and Mackintoshes.

Archer Rubber Co., Milford, Mass.  
 Badger Raincoat Co., Port Washington, Wis.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Clifton Mfg. Co., Boston, Mass.  
 Firestone-Apsley Rubber Co., Hudson, Mass.  
 Miner Rubber Co., Ltd., The, Granby, Quebec.  
 Pirelli, Milan, Italy.  
 United States Rubber Co., New York.

## Corset Materials.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.

## Diving Apparatus.

Hale, Alfred, Rubber Co., Boston, Mass.  
 United States Rubber Co., New York.

## Dress Shield Material.

Archer Rubber Co., Milford, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Davol Rubber Co., Providence, R. I.  
 Faultless Rubber Co., Ashland, Ohio.  
 Kleinert, I. B., Rubber Co., The, New York.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 Schwarzwaelder Co., The, Philadelphia, Pa.  
 United States Rubber Co., New York.

## Horse Covers.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

## Horse Cover Material.

United States Rubber Co., New York.

## Piano Player Cloths.

United States Rubber Co., New York.

## Ponchos.

Archer Rubber Co., Milford, Mass.  
 Clifton Manufacturing Co., Boston, Mass.  
 Schwarzwaelder Co., The, Philadelphia, Pa.

United States Rubber Co., New York.

## Printing on Rubber Surface.

Archer Rubber Co., Milford, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Plymouth Rubber Co., Inc., Canton, Mass.

## Proofing.

Archer Rubber Co., Milford, Mass.  
 Archer-Strauss Rubber Co., Framingham, Mass.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Hale, Alfred, Rubber Co., Atlantic, Mass.  
 Miner Rubber Co., Ltd., The, Granby, Quebec.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 Schwarzwaelder Co., The, Philadelphia, Pa.  
 United States Rubber Co., New York.

## Rubber Coated Cloths.

Archer Rubber Co., Milford, Mass.  
 Archer-Strauss Rubber Co., Framingham, Mass.

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Clifton Manufacturing Co., Boston, Mass.  
 Hale, Alfred, Rubber Co., Atlantic, Mass.  
 Mechanical Fabric Co., Providence, R. I.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 Schwarzwaelder Co., The, Philadelphia, Pa.  
 United States Rubber Co., New York.

## Tape—Adhesive.

Bemis Associates, Inc., Watertown, Mass.

## RUBBER FOOTWEAR.

## Boots and Shoes.

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Firestone-Apsley Rubber Co., Hudson, Mass.  
 Gutta Percha & Rubber, Limited, Toronto, Canada.  
 Miner Rubber Co., Granby, Quebec.  
 United States Rubber Co., New York.

## Heels.

Meade Rubber Co., Stoughton, Mass.  
 Miner Rubber Co., Ltd., The, Granby, Quebec.  
 Plymouth Rubber Co., Inc., Canton, Mass.

## Heels and Soles.

Boston Woven Hose & Rubber Co., Cambridge, Mass.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Essex Rubber Co., Trenton, N. J.  
 Gutta Percha & Rubber, Limited, Toronto, Canada.  
 Hale, Alfred, Rubber Co., Atlantic, Mass.  
 United States Rubber Co., New York.  
 Western Rubber Co., Goshen, Ind.

## Heel Burrs.

Sessions, J. H., & Son, Bristol, Conn.  
 Ward & Andre, Brockton, Mass.

## Heel Nails.

United Shoe Machinery Corporation, Boston, Mass.

Shoe Findings and Specialties.  
 Clifton Manufacturing Co., Boston, Mass.  
 Essex Rubber Co., Trenton, N. J.  
 Meade Rubber Co., Stoughton, Mass.  
 United States Knitting Co., Pawtucket, Mass.  
 United States Rubber Co., New York.

## Soles—Crêpe.

Appleton Rubber Co., Franklin, Mass.  
 Hale, Alfred, Rubber Co., Atlantic, Mass.

## Soling.

Gutta Percha & Rubber, Ltd., Toronto, Can.

## Wading Pants.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
 Hale, Alfred, Rubber Co., Boston, Mass.  
 United States Rubber Co., New York.

## DENTAL AND STAMP RUBBER.

## Dental Gum.

Brooklyn Shield & Rubber Co., Brooklyn, N. Y.  
 United States Rubber Co., New York.  
 White, S. S., Dental Mfg. Co., The, Philadelphia, Pa.

## Dentists' Sundries.

United States Rubber Co., New York.

## Rubber Dam.

Brooklyn Shield & Rubber Co., Inc., Brooklyn, N. Y.  
 Davol Rubber Co., Providence, R. I.  
 Plymouth Rubber Co., Inc., Canton, Mass.  
 United States Rubber Co., New York.

## Sponge Rubber.

Faultless Rubber Co., Ashland, Ohio.  
 United States Rubber Co., New York.

## Stamp Gum.

Gutta Percha & Rubber, Ltd., Toronto.  
 United States Rubber Co., New York.

## ELECTRICAL.

Battery Sealing Compounds.  
 Robertson, H. H., Co., Pittsburgh, Pa.  
 Vanderbilt, R. T., New York, N. Y.

## Electrical Supplies.

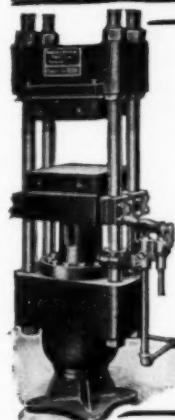
American Hard Rubber Co., New York.  
 Canfield Rubber Co., Bridgeport, Conn.  
 Stokes, Joseph, Rubber Co., Trenton, N. J.

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336 W. Water St. SYRACUSE, N. Y.

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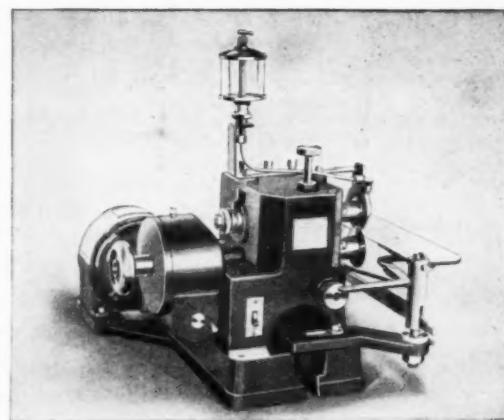
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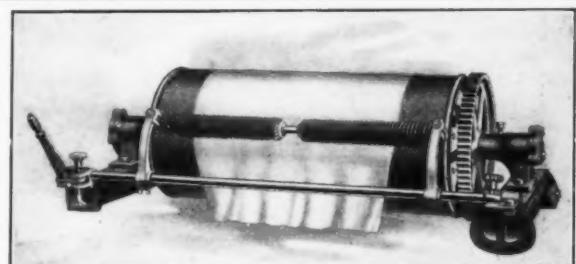
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## RUBBER BUYERS' DIRECTORY—

Electrical, Sporting  
and Accessories, Goods,  
Rubber Rubber Tires  
Machinery.

## Electrical Supplies—Continued.

United States Rubber Co., New York.  
Vulcanized Rubber Co., New York.

## Hard Rubber Goods.

American Hard Rubber Co., New York.  
Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Camfield Rubber Co., Bridgeport, Conn.  
States, Joseph, Rubber Co., Trenton,  
N. J.  
United States Rubber Co., New York.  
Vulcanized Rubber Co., New York.  
Westinghouse Electric & Mfg. Co., East  
Pittsburgh, Pa.

## Insulating Compounds.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Camfield Rubber Co., Bridgeport, Conn.  
Gutta Percha and Rubber, Limited,  
Toronto, Canada.  
Robertson, H. H., Co., Pittsburgh, Pa.  
Tyson Bros., Inc., Woodbridge, N. J.

## Insulated Wire and Cables.

Koefoed Wire & Cable Co., N. Y.  
Pirelli, Milan, Italy.  
United States Rubber Co., New York.  
Westinghouse Electric & Mfg. Co., East  
Pittsburgh, Pa.

## Splicing Compounds.

Appleton Rubber Co., Franklin, Mass.  
Boston Woven Hose & Rubber Co., Cam-  
bridge, Mass.  
Camfield Rubber Co., Bridgeport, Conn.  
Clifton Manufacturing Co., Boston, Mass.  
Homes Rubber Co., Trenton, N. J.  
Plymouth Rubber Co., Inc., Canton, Mass.  
United States Rubber Co., New York.

## Tape—Cloth Friction.

Appleton Rubber Co., Franklin, Mass.  
Boston Woven Hose & Rubber Co., Cam-  
bridge, Mass.  
Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Camfield Rubber Co., Bridgeport, Conn.  
Clifton Manufacturing Co., Boston, Mass.  
Homes Rubber Co., Trenton, N. J.  
Plymouth Rubber Co., Inc., Canton, Mass.  
United States Rubber Co., New York.

## Tape—Rubber Insulating.

Appleton Rubber Co., Franklin, Mass.  
Clifton Manufacturing Co., Boston, Mass.  
Plymouth Rubber Co., Inc., Canton, Mass.  
United States Rubber Co., New York.

## Wire—Rubber Insulated.

United States Rubber Co., New York.

## Wire—Lead Covered.

United States Rubber Co., New York.

## SPORTING GOODS.

## Foot Balls.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Seamless Rubber Co., Inc., The, New  
Haven, Conn.

United States Rubber Co., New York.

## Golf Balls.

Faultless Rubber Co., Ashland, Ohio.  
United States Rubber Co., New York.

## Sporting Goods.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Essex Rubber Co., Trenton, N. J.  
Pennsylvania Rubber Co., Jeannette, Pa.  
Seamless Rubber Co., Inc., New Haven,  
Conn.

United States Rubber Co., New York.

## Striking Bags.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Seamless Rubber Co., Inc., New Haven,  
Conn.  
United States Rubber Co., New York.

## Tennis Balls.

Faultless Rubber Co., Ashland, Ohio.  
Pennsylvania Rubber Co., Jeannette, Pa.RUBBER TIRES AND  
ACCESSORIES.

## Accessories.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Essex Rubber Co., Trenton, N. J.  
Firestone Tire & Rubber Co., Akron, Ohio  
Fisk Rubber Co., Chicopee Falls, Mass.  
General Tire & Rubber Co., Akron, Ohio  
Gutta Percha & Rubber, Ltd., Toronto  
Hewitt Rubber Co., Buffalo, N. Y.  
Miller, Chas. E., Anderson, Ind.  
Pennsylvania Rubber Co., Jeannette, Pa.  
Pirelli, Milan, Italy.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.

## Auto Top Fabrics.

Boston Woven Hose & Rubber Co., Cam-  
bridge, Mass.  
Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Lawrence & Co., New York.  
Plymouth Rubber Co., Inc., Canton, Mass.  
Taylor, Armitage & Eagles, Inc., N. Y.  
United States Rubber Co., New York.

## Bead Braid (Wire).

National-Standard Co., Niles, Mich.

## Inner Tubes.

Acme Rubber Mfg. Co., Trenton, N. J.  
Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.

Essex Rubber Co., Trenton, N. J.

Firestone Tire &amp; Rubber Co., Akron, Ohio.

Fisk Rubber Co., Chicopee Falls, Mass.

Gutta Percha &amp; Rubber, Ltd., Toronto.

Hewitt Rubber Co., Buffalo, N. Y.

General Tire &amp; Rubber Co., Akron, Ohio.

Gutta Percha &amp; Rubber, Ltd., Toronto.

Pennsylvania Rubber Co., Jeannette, Pa.

Quaker City Rubber Co., Philadelphia, Pa.

United States Rubber Co., New York.

Voorhees Rubber Mfg. Co., Jersey City,  
N. J.

## Mats—Automobile.

(See Matting and Mechanical Rubber  
Goods.)

## Repair Stock.

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Essex Rubber Co., Trenton, N. J.  
Firestone Tire & Rubber Co., Akron, Ohio.  
Fisk Rubber Co., Chicopee Falls, Mass.  
General Tire & Rubber Co., Akron, Ohio.  
Miller, Chas. E., Anderson, Ind.  
United States Rubber Co., New York.

## Tires (Auto).

Acme Rubber Mfg. Co., Trenton, N. J.  
Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Firestone Tire & Rubber Co., Akron, Ohio.  
Fisk Rubber Co., Chicopee Falls, Mass.  
General Tire & Rubber Co., Akron, Ohio.  
Miller, Chas. E., Anderson, Ind.  
Gutta Percha & Rubber, Ltd., Toronto.  
Hewitt Rubber Co., Buffalo, N. Y.  
Miller, Chas. E., Anderson, Ind.  
Pennsylvania Rubber Co., Jeannette, Pa.  
Pirelli, Milan, Italy.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.

## Tires—Baby Carriage.

Boston Woven Hose & Rubber Co., Cam-  
bridge, Mass.  
Cincinnati Rubber Mfg. Co., Cincinnati,  
Ohio.  
Elast Rubber Co., The, Cuyahoga Falls,  
Ohio.  
Gutta Percha & Rubber, Ltd., Toronto,  
Canada.  
Quaker City Rubber Co., Philadelphia, Pa.  
United States Rubber Co., New York.

## Tires (Bicycle).

Fisk Rubber Co., Chicopee Falls, Mass.  
Miller, Chas. E., Anderson, Ind.  
Pennsylvania Rubber Co., Jeannette, Pa.

## Tires (Motorcycle).

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Canada.  
Firestone Tire & Rubber Co., Akron, Ohio.  
Fisk Rubber Co., Chicopee Falls, Mass.  
Miller, Chas. E., Anderson, Ind.  
Pennsylvania Rubber Co., Jeannette, Pa.

## Tires (Solid).

Canadian Consolidated Rubber Co., Ltd.,  
Montreal, Can.

Firestone Tire &amp; Rubber Co., Akron, Ohio.

Fisk Rubber Co., Chicopee Falls, Mass.

Gutta Percha & Rubber, Ltd., Toronto,  
Canada.

United States Rubber Co., New York.

Tire Fabrics (See Cotton Goods  
in Raw Materials and  
Supplies).

## Tire Repair Materials.

Essex Rubber Co., Trenton, N. J.

Firestone Tire &amp; Rubber Co., Akron, Ohio.

Fisk Rubber Co., Chicopee Falls, Mass.

Miller, Chas. E., Anderson, Ind.

Voorhees Rubber Mfg. Co., Jersey City,  
N. J.

## Wire Bead Braids (Flat).

National-Standard Co., Niles, Mich.

## RUBBER MACHINERY.

## Accumulators—Hydraulic.

Adamson Machine Co., The, Akron, O.

Akron Equipment Co., The, Akron, O.

Allen Machine Co., Erie, Pa.

Birmingham Iron Foundry, Derby, Conn.

Burroughs Co., The, Newark, N. J.

de Laski & Tropp Circular Woven Tire  
Co., The, Trenton, N. J.Dunning & Borschert Press Co., Inc.,  
Syracuse, N. Y.

Farrel F. &amp; M. Co., Ansonia, Conn.

Southwark Foundry & Machine Co.,  
Philadelphia, Pa.

Watson-Stillman Co., The, New York.

Williams F. &amp; M. Co., Akron, Ohio.

Wood, R. D., &amp; Co., Philadelphia, Pa.

## Acid Tanks.

Devine, J. P., Co., Buffalo, N. Y.

## Air Bags

Miller, Charles E., Anderson, Ind.

## Air Compressors.

Miller, Chas. E., Anderson, Ind.

Williams F. &amp; M. Co., Akron, Ohio.

## Band Cutting Machines.

Adamson Machine Co., The, Akron, O.

Birmingham Iron Foundry, Derby, Conn.

Utility Manufacturing Co., Cudahy, Wis.

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Pyrometers.Tagliabue, C. J., Mfg. Co., Brooklyn,  
N. Y.

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Cord Tire Fabrics and Cord Tires, Continued.	Tire Tests and Testing Machines.	Cord Tire Repair.
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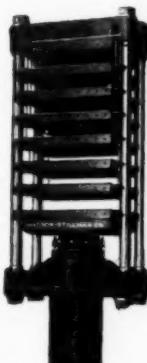
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## RUBBER BUYERS' DIRECTORY—Rubber Machinery.

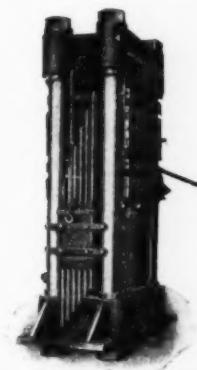
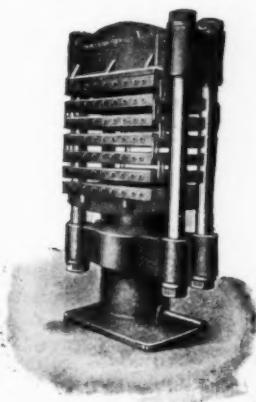
<b>Bead Flippers.</b> Utility Manufacturing Co., Cudahy, Wis.	<b>Castings—Continued.</b> De Mattia Bros., Garfield, N. J. Farrel F. & M. Co., Ansonia, Conn. Pool Engineering & Machine Co., Baltimore, Md. Vaughn Machinery Co., The, Cuyahoga Falls, Ohio. Williams F. & M. Co., Akron, Ohio.	<b>Cranes.</b> Southwark Foundry & Machine Co., Philadelphia, Pa.	<b>Electrical Safety Switches.</b> Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
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<b>Bead Trimmers.</b> Banner Machine Co., The, Columbian, Ohio. Bridgewater Machine Co., Akron, Ohio.	<b>Chemical Plants.</b> Devine, J. P., Co., Buffalo, N. Y.	<b>Cutters—Crude Rubber.</b> Peerless Machine Co., The, Racine, Wis.	<b>Engineering Devices.</b> Farnall-Waring Co., Philadelphia, Pa.
<b>Belt Folding Machines.</b> Birmingham Iron Foundry, Derby, Conn. Farrel F. & M. Co., Ansonia, Conn.	<b>Chucks—Lathe and Drill.</b> Hoggson & Pettis Mfg. Co., New Haven, Conn.	<b>Cutters—Scrap.</b> Taylor, Stiles & Co., Riegelsville, N. J.	<b>Engines—Steam.</b> de Laski & Thropp Circular Woven Tire Co., The, Trenton, N. J. Thropp, William R., Sons' Co., Trenton, N. J.
<b>Belt Slitters.</b> Birmingham Iron Foundry, Derby, Conn. Farrel F. & M. Co., Ansonia, Conn.	<b>Churns and Cement Making Machines.</b> Day Co., J. H., Cincinnati, Ohio. Miller, Chas. E., Anderson, Ind.	<b>Cutters—Sole.</b> Wellman Co., Medford, Mass.	<b>Engraving Rolls.</b> Birmingham Iron Fdry., Derby, Conn. Farrel F. & M. Co., Ansonia, Conn. Hoggson & Pettis Mfg. Co., New Haven, Conn.
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<b>Blanking Rolls.</b> Surroughs Co., The, Newark, N. J.	<b>Clutch Brakes—Pneumatic.</b> Birmingham Iron Foundry, Derby, Conn.	<b>Die Sinking and Engraving.</b> Surroughs Co., The, Newark, N. J. College Point Mold & Machine Co., College Point, L. I., N. Y.	<b>Eyeletting Machines.</b> United Shoe Machinery Corporation, Boston, Mass.
<b>Boilers.</b> de Laski & Thropp Circular Woven Tire Co., The, Trenton, N. J. Thropp, William R., Sons' Co., Trenton, N. J.	<b>Clutches—Friction.</b> Allen Machine Co., Erie, Pa. Birmingham Iron Fdry., Derby, Conn. Cutler Hammer Mfg. Co., The, Milwaukee, Wis. Farrel F. & M. Co., Ansonia, Conn. Johnson, Carlyle, Machine Co., The, Manchester, Conn. Vaughn Machinery Co., The, Cuyahoga Falls, Ohio. Williams F. & M. Co., Akron, Ohio.	<b>Die Blocks.</b> Hoggson & Pettis Mfg. Co., The, New Haven, Conn.	<b>Fittings.</b> Utility Manufacturing Co., Cudahy, Wis.
<b>Braiders.</b> New England Butt Co., Providence, R. I.	<b>Clutch Brakes—Pneumatic.</b> Birmingham Iron Foundry, Derby, Conn.	<b>Die Blocks.</b> Hoggson & Pettis Mfg. Co., The, New Haven, Conn.	<b>Fittings—Hydraulic Pipe.</b> Watson-Stillman Co., The, New York.
<b>Brushing Machines and Brushes.</b> Gurtis & Marble Mach. Co., Worcester, Mass.	<b>Combustion Recorders.</b> Tagliabue, C. J., Mfg. Co., Brooklyn, N. Y.	<b>Dies.</b> Akron Equipment Co., The, Akron, O. Surroughs Co., The, Newark, N. J. College Point Mold & Machine Co., College Point, L. I., N. Y. Hoggson & Pettis Mfg. Co., New Haven, Conn. Housatonic Mach. & Tool Co., Bridgeport, Conn. Kuhn & Jacob Machine & Tool Co., Trenton, N. J. Mechanical Mold & Machine Co., The, Akron, Ohio. Terkelsen Machine Co., Boston, Mass. Williams F. & M. Co., Akron, Ohio.	<b>Gages.</b> Bristol Co., The, Waterbury, Conn. Hoggson & Pettis Mfg. Co., New Haven, Conn. Tagliabue, C. J., Mfg. Co., Brooklyn, N. Y.
<b>Brass Fittings.</b> Boston Woven Hose & Rubber Co., Cambridge, Mass.	<b>Controllers—Electrical.</b> Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.	<b>Dipped Goods Forms (Porcelain).</b> Colonial Insulator Co., The, Akron, Ohio. Seville Porcelain Co., Seville, Ohio.	<b>Gages—Thickness.</b> Hoggson & Pettis Mfg. Co., New Haven, Conn. Randall, Frank E., Waltham, Mass.
<b>Buffing Machines.</b> Banner Machine Co., The, Columbian, Ohio. Williams Foundry & Machine Co., The, Akron, Ohio.	<b>Controllers—Temperature-Pressure.</b> Tagliabue, C. J., Mfg. Co., Brooklyn, N. Y.	<b>Doubling Machines.</b> Birmingham Iron Fdry., Derby, Conn. Farrel F. & M. Co., Ansonia, Conn.	<b>Gear Cutting.</b> Birmingham Iron Foundry, Derby, Conn. Bristle Stretcher Co., The, Mansfield, Mass. Farrel Foundry & Machine Co., Ansonia, Conn. Fawcett Machine Co., Pittsburgh, Pa. Vaughn Machinery Co., The, Cuyahoga Falls, Ohio.
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<b>Calenders.</b> Adamson Machine Co., The, Akron, Ohio. Allen Machine Co., Erie, Pa. Birmingham Iron Foundry, Derby, Conn. Black Rock Mfg. Co., Bridgeport, Conn. Farrel F. & M. Co., Ansonia, Conn. Vaughn Machinery Co., The, Cuyahoga Falls, Ohio.	<b>Couplings—Flexible and Rigid</b> Birmingham Iron Foundry, Derby, Conn. Farrel Foundry & Machine Co., Ansonia, Conn.	<b>Drying and Processing.</b> Carrier Engineering Corp., Newark, N. J.	<b>Gears—Helical.</b> Farrel Foundry & Machine Co., Ansonia, Conn. Poole Engineering & Machine Co., Baltimore, Md.
<b>Calenders—Brake Lining.</b> Allen Machine Co., Erie, Pa. Black Rock Mfg. Co., The, Bridgeport, Conn.	<b>Couplers.</b> Allen Machine Co., Erie, Pa. Birmingham Iron Foundry, Derby, Conn. Farrel Foundry & Machine Co., Ansonia, Conn.	<b>Duck Slitters.</b> Birmingham Iron Foundry, Derby, Conn. Farrel Foundry & Machine Co., Ansonia, Conn.	<b>Gears—Herringbone.</b> Birmingham Iron Foundry, Derby, Conn. Farrel Foundry & Machine Co., Ansonia, Conn.
<b>Calender Screw-Down—Motor Driven.</b> Allen Machine Co., Erie, Pa. Birmingham Iron Foundry, Derby, Conn. Cutler Hammer Mfg. Co., The, Milwaukee, Wis. Farrel Foundry & Machine Co., Ansonia, Conn. Vaughn Machinery Co., The, Cuyahoga Falls, Ohio.	<b>Durometers.</b> Shore Instrument & Mfg. Co., The, Jamaica, N. Y.		
<b>Castings.</b> Adamson Machine Co., The, Akron, O. Allen Machine Co., Erie, Pa. Banner Machine Co., The, Columbian, Ohio. Birmingham Iron Foundry, Derby, Conn.	<b>For Complete Addresses See Advertisements—Index Page 110</b>		



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Fawcett Machine Co., Pittsburgh, Pa.  
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Southwick Foundry & Machine Co., Phila-  
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Wood, H. D., & Co., Philadelphia, Pa.

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Machines.

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Farrel Foundry & Machine Co., Ansonia,  
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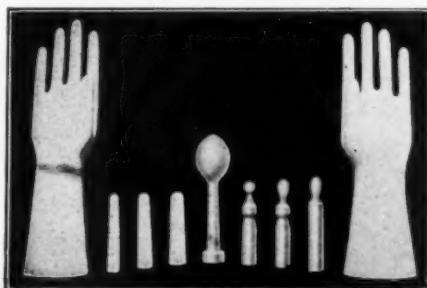
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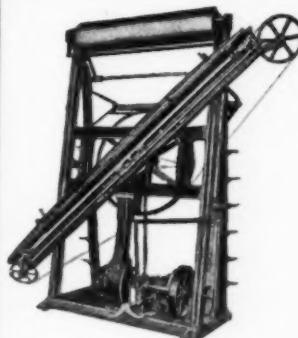
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N. J.  
Utility Manufacturing Co., Cudahy, Wis.  
Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.  
Watson-Stillman Co., The, New York.  
Williams Foundry & Machine Co.,  
Akron, O.  
Wood, R. D., & Co., Philadelphia, Pa.

**Pumps.**

Adamson Machine Co., The, Akron, Ohio  
Allen Machine Co., Erie, Pa.  
Birmingham Iron Foundry, Derby, Conn.  
Burroughs Co., The, Newark, N. J.  
Devine, J. P., Co., Buffalo, N. Y.  
Dunning & Boschert Press Co., Inc.,  
Syracuse, N. Y.  
Southwick Foundry & Machine Co.,  
Philadelphia, Pa.  
Watson-Stillman Co., The, New York.

**Pumps—Centrifugal.**

Southwick Foundry & Machine Co.,  
Philadelphia, Pa.

**Pumps—Vacuum.**

Devine, J. P., Co., Buffalo, N. Y.

**Racks and Frames.**

Hoggson & Pettis Mfg. Co., New Haven,  
Conn.

**Reclaiming Machinery.**

Adamson Machine Co., The, Akron, Ohio  
Allen Machine Co., Erie, Pa.  
American Process Co., New York.  
Biggs Boiler Works Co., The, Akron, Ohio.  
Birmingham Iron Foundry, Derby, Conn.  
Devine, J. P., Co., Buffalo, N. Y.  
Farrel, F. & M. Co., Ansonia, Conn.  
Metromatic M. & T. Co., Bridgeport,  
Conn.  
Taylor, Stiles & Co., Biegelville, N. J.  
Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.

**Reclaiming Water Separators.**

American Process Co., New York City.  
Devine, J. P., Co., Buffalo, N. Y.  
Louisville Drying Machinery Co., Louis-  
ville, Ky.  
Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.

**Recording Instruments.**

For Pressure and Temperature.  
Bristol Co., The, Waterbury, Conn.  
andall, Frank E., Wattham, Mass.  
Tagliabue, C. J., Mfg. Co., Brooklyn,  
N. Y.  
Farnall-Waring Co., Philadelphia, Pa.

**Refiners.**

Allen Machine Co., Erie, Pa.  
Birmingham Iron Foundry, Derby, Conn.  
Farrel Foundry & Machine Co., Ansonia,  
Conn.  
Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.

**Repair Equipment for Rubber  
Footwear.**

Jackson & Pettis Mfg. Co., The, New  
Haven, Conn.

Diller, Chas. E., Anderson, Ind.

**Riveters.**

Watson-Stillman Co., The, New York.

**Rivets.**

Sessions, J. H., & Son, Bristol, Conn.

**Rollers and Stitchers—Hand.**

Jackson & Pettis Mfg. Co., New Haven,  
Conn.

Diller, Chas. E., Anderson, Ind.

Wellman Co., Medford, Mass.

**Rolls—Chilled.**

Akron Rubber Mold & Machine Co.,  
Akron, Ohio.

Allen Machine Co., Erie, Pa.

Birmingham Iron Foundry, Derby, Conn.

Griffith & Marble Mch. Co., Worcester,  
Mass.

Farrel Foundry & Machine Co., Ansonia,  
Conn.

Textile-Finishing Machinery Co., Prov-  
idence, R. I.

Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.

**Rubber Covering Machines.**

New England Butt Co., Providence, R. I.

**Rubber Scrap Cutters.**

Taylor, Stiles & Co., Biegelville, N. J.

**Scales—Automatic Dial**

Heavy Duty

Bench

Overhead Track

Hanging

Continuous—Sheet Weigher

Tire Testing

Counting

Special Purposes

Toledo Scale Co., Toledo, Ohio.

**Scleroscopes.**

Shore Instrument & Mfg. Co., The, Ja-  
maica, N. Y.

**Sewing Machines.**

Martin & Marble Mch. Co., Worcester.

**Shafting.**

Adamson Machine Co., The, Akron, Ohio.

Allen Machine Co., Erie, Pa.

Birmingham Iron Foundry, Derby, Conn.

Farrel F. & M. Co., Ansonia, Conn.

Vaughn Machinery Co., The, Cuyahoga  
Falls, Ohio.

**Sheet Metal Specialties**

Brass Goods Mfg. Co., Brooklyn, N. Y.

**Sherardizing.**

New Haven Sherardizing Co., New Haven,  
Conn.

**Shoe Cars and Sticks.**

Birmingham Iron Foundry, Derby, Conn.

Hoggson & Pettis Mfg. Co., The, New

Haven, Conn.

**Sifters—Dry.**

Day, J. W., Co., Cincinnati, Ohio.

For Complete Addresses See Advertisements—Index Page 110

**Skiving Machines.**

Allen Machine Co., Erie, Pa.  
United Shoe Machinery Corporation,  
Boston, Mass.

**Slitting and Re-Winding Ma-  
chines.**

Cameron Machine Co., Brooklyn, N. Y.

**Solvent Recovery Apparatus.**

Devine, J. P., Co., Buffalo, N. Y.

**Special Machinery.**

Akron Equipment Co., The, Akron, O.  
Akron Rubber Mold & Mach. Co., Akron,  
Ohio.

Allen Machine Co., Erie, Pa.

Banner Machine Co., The, Columbian.

Ohio.

Biggs Boiler Works Co., The, Akron,

Ohio.

Birmingham Iron Foundry, Derby, Conn.

Black Rock Mfg. Co., Bridgeport, Conn.

De Mattia Bros., Garfield, N. J.

Farrel Foundry & Machine Co., Ansonia,

Conn.

Franz Foundry & Machine Co., Akron,

Ohio.

Hoggson & Pettis Mfg. Co., The, New

Haven, Conn.

Kuhlike Machine Co., Akron, Ohio.

Smith, H., Monroe, Passaic, N. J.

Terkeisen Machine Co., Boston, Mass.

Vaughn Machinery Co., The, Cuyahoga

Falls, Ohio.

Williams Foundry & Machine Co., The,

Akron, Ohio.

Willis, Arthur Jackson, North Brookfield,

Mass.

**Spreaders.**

Adamson Machine Co., The, Akron, Ohio.

Banner Machine Co., The, Columbian.

Ohio.

Birmingham Iron Foundry, Derby, Conn.

New England Butt Co., Providence, R. I.

Textile-Finishing Machinery Co., Prov-  
idence, R. I.

Vaughn Machinery Co., The, Cuyahoga

Falls, Ohio.

**Sprockets.**

Spring Silent Chain, Compensating.

Hoggson & Pettis Mfg. Co., The, New

Haven, Conn.

**Steel Stamping.**

Sessions, J. H., & Son, Bristol, Conn.

**Steel Stamps.**

Hoggson & Pettis Mfg. Co., New Haven,

Conn.

Wellman Co., Medford, Mass.

**Stitchers.**

Akron Rubber Mold & Machine Co.,  
Akron, Ohio.

Hoggson & Pettis Mfg. Co., New Haven,

Conn.

**Stock Shells.**

Gammeter, W. F., Co., The, Cadiz, Ohio.

New Haven Sherardizing Co., Hartford,  
Conn.

**Strip Cutters.**

Birmingham Iron Foundry, Derby, Conn.

Cameron Machine Co., Brooklyn, N. Y.

New England Butt Co., Providence, R. I.

Spadone Machine Co., Inc., New York.

**Stripping Tables.**

Akron Standard Mold Co., Akron, Ohio.

Banner Machine Co., The, Columbian.

Ohio.

Hoggson & Pettis Mfg. Co., The, New

Haven, Conn.

Miller, Chas. E., Anderson, Ind.

Williams Foundry & Machine Co., The,

Akron, Ohio.

Wood, R. D., & Co., Philadelphia, Pa.

**Stock Shells.**

Gammeter, W. F., Co., The, Cadiz, Ohio.

New Haven Sherardizing Co., Hartford,  
Conn.

**Swing Joints.**

Adamson Machine Co., The, Akron, Ohio.

Allen Machine Co., Erie, Pa.

Currier, F. N., New York.

Diamond Metal Products Co., St. Louis,

Mo.

Flexo Supply Co., St. Louis, Mo.

Williams, Franklin, Inc., New York.

Tanks, Storage—Oil and Gaso-

line.

Biggs Boiler Works Co., Akron, Ohio.

Tire Rebuilding and Repair

Equipment.

Akron Rubber Mold & Mach. Co., The,

Akron, O.

Biggs Boiler Works Co., The, Akron, O.

Franz Foundry & Machine Co., Akron,

Ohio.

Hoggson & Pettis Mfg. Co., The, New

Haven, Conn.

Miller, Chas. E., Anderson, Ind.

Williams Foundry & Machine Co., The,

Akron, Ohio.

Wood, R. D., & Co., Philadelphia, Pa.

**Tire Wrapping Machines.**

Adamson Machine Co., The, Akron, Ohio.

Akron Standard Mold Co., Akron, Ohio.

Allen Machine Co., Erie, Pa.

Banner Machine Co., The, Columbian.

Ohio.

de Laski & Thropp Circular Woven Tire

Co., The, Trenton, N. J.

Miller, Chas. E., Anderson, Ind.

Terkeisen Machine Co., Boston, Mass.

**Testing Machines.**

Shore Instrument & Mfg. Co., The, Ja-  
maica, N. Y.

**Thermometers.**

Tagliabue, C. J., Mfg. Co., Brooklyn,  
N. Y.

**Tire Building Equipment.**

Adamson Machine Co., The, Akron, Ohio.

Akron Equipment Co., The, Akron, O.

Akron Rubber Mold & Machine Co.,  
Akron, Ohio.

Akron Standard Mold Co., Akron, Ohio.

Allen Machine Co., Erie, Pa.

Banner Machine Co., The, Columbian.

Ohio.

Birmingham Iron Foundry, Derby, Conn.

Bridgewater Machine Co., Akron, Ohio.

de Laski & Thropp Circular Woven Tire

Co., The, Trenton, N. J.

De Mattia Bros., Inc., Garfield, N. J.

Williams Foundry & Machine Co., The,

Akron, Ohio.

**Tire Building Machines.**

Banner Machine Co., The, Columbian.

Ohio.

De Mattia Bros., Garfield, N. J.

Williams Foundry & Machine Co., The,

Akron, Ohio.

**Tire Lasts.**

Miller, Chas. E., Anderson, Ind.

Williams Foundry & Machine Co., The,

Akron, Ohio.

**Tire Machine Drums.**

Gammeter, W. F., Co., The, Cadiz, Ohio.

**Tire Presses.**

Adamson Machine Co., The, Akron, Ohio.

Akron Equipment Co., The, Akron, O.

Birmingham Iron Foundry, Derby, Conn.

Dunning & Boschert Press Co., Inc.,  
Akron, Ohio.

Miller, Chas. E., Anderson, Ind.

Southwick Foundry & Machine Co., Phila-  
delphia, Pa.

Watson-Stillman Co., The, New York.

Williams Foundry & Machine Co., The,

Akron, Ohio.

Wood, R. D., & Co., Philadelphia, Pa.

Tire Vulcanizing Presses.

Adamson Machine Co., The, Akron, O.

Akron Equipment Co., The, Akron, O.

Birmingham Iron Foundry, Derby, Conn.

Bridgewater Machine Co., Akron, Ohio.

de Laski & Thropp Circular Woven Tire

Co., The, Trenton, N. J.

Miller, Chas. E., Anderson, Ind.

Williams, F. & M. Co., Akron, Ohio.

Wood, R. D., & Co., Philadelphia, Pa.



## Cutting Manufacturing Costs

THE proper control of your motor-driven equipment increases the efficiency of every drive—reduces wasted time, saves power, increases output—and thus cuts cost of production.

In the case of machine tools there are types of Cutler-Hammer Controllers that permit the quick selection of effective speeds for every job and part of each job.

Where various parts of the plant or several machines are auxiliary to each other—C-H Con-

trol insures proper co-ordination.

Even with the simplest drives—the long life and dependable functioning of Cutler-Hammer Controllers mean low maintenance—while at the same time protecting the motors against damage due to overloading or failure of the power supply.

Through the experience and work of Cutler-Hammer engineers, the satisfactory operation of many kinds of motor-driven machines has been made possible. It will pay you to let these engineers consult with you.

### THE CUTLER-HAMMER MFG. CO.

Works: Milwaukee and New York

#### Branch Offices:

New York: 8 W. 40th Street  
Chicago: 323 N. Michigan Avenue  
Pittsburgh: Century Building  
Philadelphia: Commonwealth Bldg.

Cleveland: Guardian Building.  
Boston: 52 Chauncy Street  
Detroit: 506 Hofman Building  
St. Louis: 2111 Ry. Exchange Bldg.

Buffalo: 358 Ellicott Square Bldg.  
Milwaukee: 530 Grand Avenue  
Cincinnati: 415 Dixie Terminal Bldg.

San Francisco: 583 Howard St.; Seattle: 352 First Avenue, South  
Los Angeles: 229 Boyd St.; Portland: 33 4th St., H. B. Squires Co.

Northern Electric Co., Ltd., Canada

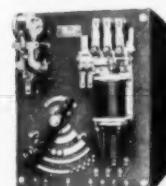
# CUTLER-HAMMER

PIONEER MANUFACTURERS OF ELECTRICAL CONTROL APPARATUS



### Motor Starters and Speed Regulators

have been used universally for more than a quarter of a century. Regardless of motor type—whether alternating or direct current or the kind of motor-driven machine—there is a C-H Controller to give the most satisfactory service.



C-H 6425 Automatic Pre-Set Controllers are designed for push button control with speed adjustment feature. Built rugged to withstand severe operating service. Also made completely enclosed.



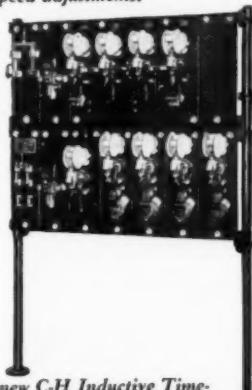
C-H 9586 new "X" Starters are for the starting of single phase and poly-phase motors automatically connecting them directly across the line.



C-H Two Button Switch used with automatic controller for control from remote points.



C-H2231 Safety Enclosed Manually Operated Starter and Speed Regulator for direct current motors. Widely used with small and average size motors on drives requiring speed adjustments.



The new C-H Inductive Time-Limit Controller with definite and uniform accelerating periods—a distinctive Cutler-Hammer development. Usual dash pots, relays, interlocks or other moving parts are eliminated. Construction is simple and adjustments for timing readily made. Get Bulletin C-2.

## RUBBER BUYERS' DIRECTORY—Rubber Machinery, Second Hand Machinery, Raw Materials and Supplies.

## Transmission Machinery.

Allen Machine Co., Erie, Pa.  
Birmingham Iron Foundry, Derby, Conn.  
Farrel Foundry & Machine Co., Ansonia, Conn.

## Tread Making Machines.

Allen Machine Co., Erie, Pa.  
Birmingham Iron Foundry, Derby, Conn.  
Vaughn Machinery Co., The, Cuyahoga Falls, Ohio.

## Trimmers.

Banner Machine Co., The, Columbians Ohio.  
Morris, T. W., Chicago, Ill.  
Wills, Arthur Jackson, North Brookfield Mass.

## Tube Coiling &amp; Boxing Machines

H. Monroe Smith, Passaic, N. J.

## Tube Cutting Machines.

H. Monroe Smith, Passaic, N. J.

## Tube Wrapping Machines.

Akron Rubber Mold & Machine Co., Akron, Ohio.  
Akron Standard Mold Co., Akron, Ohio.  
Allen Machine Co., Erie, Pa.  
Banner Machine Co., The, Columbians Ohio.  
Black Rock Mfg. Co., The, Bridgeport, Conn.  
Williams Foundry & Machine Co., The, Akron, Ohio.

## Tubing Machines.

Adamson Machine Co., Akron, O.  
Akron Rubber Mold & Machine Co., Akron, O.  
Allen Machine Co., Erie, Pa.  
Gescomonic Mach. & Tool Co., Bridgeport, Conn.  
Royle, John, & Sons, Paterson, N. J.

## Tubing Machine Attachments.

Automatic Revolving Fans.  
Inside Soapstone.  
Outside Soapstone.  
Traveling Aprons.

H. Monroe Smith, Passaic, N. J.

## Vacuum Cloth Impregnating Equipment.

Banner Machine Co., The, Columbians, Ohio.  
Devine, J. P., Co., Buffalo, N. Y.

## Valve Grinders.

Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.  
Quaker City Rubber Co., Philadelphia, Pa.

## Valves.

Burroughs Co., The, Newark, N. J.  
Dunning & Boschert Press Co., Inc., Syracuse, N. Y.  
Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.  
Southwick Foundry & Machine Co., Philadelphia, Pa.  
Tagliabue, C. J., Mfg. Co., Brooklyn, N. Y.  
Utility Manufacturing Co., Cudahy, Wis.  
Yarnall-Waring Co., Philadelphia, Pa.

## Valves (Reducing).

Mason Regulator Co., Dorchester, Mass.  
Tagliabue, C. J., Mfg. Co., Brooklyn, N. Y.

## Valves—Two Pressure

Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.  
Yarnall-Waring Co., Philadelphia, Pa.

## Varnishing Machines.

Birmingham Iron Foundry, Derby, Conn.

## Vulcanizers.

Adamson Machine Co., Akron, O.  
Akron Equipment Co., The, Akron, Ohio.  
Akron Rubber Mold & Machine Co., Akron, O.

Allen Machine Co., Erie, Pa.  
Biggs Boiler Works Co., Akron, O.  
Birmingham Iron Foundry, Derby, Conn.  
de Laski & Thropp Circular Woven Tire Co., The, Trenton, N. J.

Devine, J. P., Co., Buffalo, N. Y.  
Fisk Rubber Co., Chicopee Falls, Mass.

For Complete Addresses See Advertisements—Index Page 110

## Vulcanizers—Continued.

Miller, Chas. E., Anderson, Ind.  
Southwick Fdy. & Mach. Co., Phila., Pa.  
Thropp, William R., Sons' Co., Trenton, N. J.

Williams P. & M. Co., Akron, Ohio.

Wood, R. D., & Co., Philadelphia, Pa.

## Washers.

Adamson Machine Co., The, Akron, Ohio.  
Allen Machine Co., Erie, Pa.  
Birmingham Iron Foundry, Derby, Conn.  
de Laski & Thropp Circular Woven Tire Co., The, Trenton, N. J.  
Devine, J. P., Co., Buffalo, N. Y.  
Farrel F. & M. Co., Ansonia, Conn.  
Thropp, William R., Sons' Co., Trenton, N. J.  
Vaughn Machinery Co., The, Cuyahoga Falls, Ohio.

## Washers—Light Steel for Rubber Heels.

Sessions, J. H., & Son, Bristol, Conn.

## Washers—Setting Machine for Heel Molds.

Utility Manufacturing Co., Cudahy, Wis.

## Worm Drives

De Laval Steam Turbine Co., The, Trenton, N. J.

## Wrapping Machines.

Adamson Machine Co., Akron, O.  
Allen Machine Co., Erie, Pa.  
Banner Machine Co., The, Columbians, Ohio.  
Birmingham Iron Foundry, Derby, Conn.  
Farrel F. & M. Co., Ansonia, Conn.  
Miller, Chas. E., Anderson, Ind.

## Wrapping Machines.

For Wrapping Bundles of Tires, Hose and Wire.

Terkelsen Machine Co., Boston, Mass.

## Wrapping Machines—Paper.

Terkelsen Machine Co., Boston, Mass.

## SECOND-HAND MACHINERY

Albert, L., & Son, Trenton, N. J.  
Barry, Lawrence N., Boston, Mass.  
McGregory, Philip, Trenton, N. J.  
Norton, M., & Co., Medford, Mass.  
Surplus Trading Corp., The, Newark, N. J.  
United Rubber Machinery Exchange, Newark, N. J.

## RAW MATERIALS AND SUPPLIES

## Accelerators.

American Cyanamid Co., New York, N. Y.  
Bullock, E. L., & Sons, Inc., New York.  
Dow Chemical Corporation, New York.  
Du Pont, E. I., de Nemours & Co., Inc., Wilmington, Del.  
Goodrich, B. F., Akron, Ohio.  
Grassell Chemical Co., New York, N. Y.  
National Aniline & Chemical Co., New York.

Naugatuck Chemical Co., Naugatuck, Conn. (N. C. C.)  
Roessler & Hasslacher Chemical Co., New York.  
Rubber Service Laboratories Co., The, Akron, Ohio.  
Vanderbilt, R. T., Co., New York.  
Wishnick-Tunepur Chemical Co., Chicago, Ill.

## Acids.

Bullock, E. L., & Sons, Inc., New York.  
Grassell Chemical Co., New York.  
National Aniline & Chemical Co., New York.

Naugatuck Chemical Co., Naugatuck, Conn.  
Wishnick-Tunepur Chemical Co., Chicago, Ill.

## Acids—Sulphuric

New Jersey Zinc Sales Co., New York.

Schoell, William H., New York.

## Whitall Tatum Company

Manufacturers of

DRUGGISTS' RUBBER SUNDRIES  
MOLDED GOODS AND GLASSWARE

FACTORIES:  
RUBBER WORKS  
KEYPORT, N. J.

GLASS WORKS  
MILLVILLE, N. J.  
EAST STROUDSBURG, PA.

OFFICES:  
NEW YORK  
PHILADELPHIA  
BOSTON  
CHICAGO  
SAN FRANCISCO  
SYDNEY, N. S. W.  
BUENOS AIRES, A. R.

QUALITY GUARANTEED

**THE SHORE INSTRUMENT & MFG. CO.**  
VAN WYCK AVENUE AND CARL ST. JAMAICA, NEW YORK  
Agents for Great Britain, Coats Machine Tool Co., Ltd., London. For Germany, Italy and Spain, Alfred H. Schutte, Köln-Deutz, etc.

NEW JERSEY RUBBER COMPANY  
EXPERT RECLAIMERS OF TIRE FRICTIONS  
LAMBERTVILLE, NEW JERSEY

## Moulded Rubber Specialties

## Plumbers' Rubber Goods

## CANFIELD RUBBER CO.

Railroad Avenue, BRIDGEPORT, CONN.

Rings, Washers, Valves, Bumpers, Etc.

Manufactured to Buyers' Specifications and Standard Grades.

We solicit inquiries for quotations and samples.

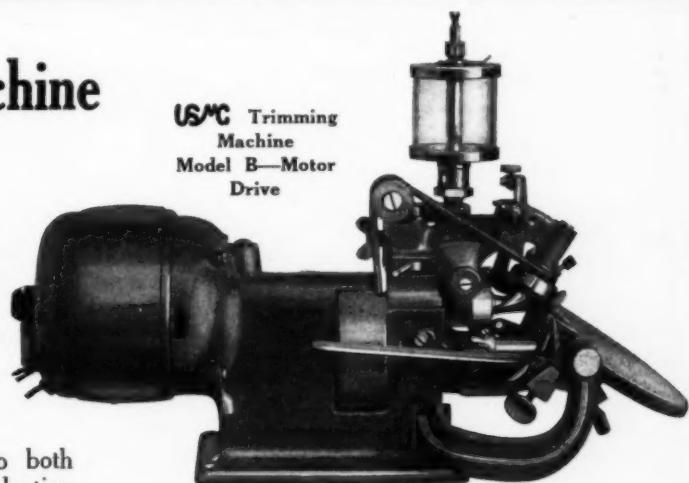
## USMC Trimming Machine

### Models A & B

The **USMC** Trimming Machine is especially designed to meet the exacting demands of the rubber heel or sole manufacturer who wants to trim the product both accurately and economically in one operation. It can also be used profitably on numerous other mechanical goods.

This machine insures perfect protection to both operator and stock, thereby increasing production and reducing the loss in "seconds" to a minimum.

Its capacity is equal to that of any like machine of similar design on the market, when used in connection with flat heels, and is much greater when used on cupped heels or heels of unusual shape and short radii. It will pay you to investigate and we shall be glad to furnish information upon request.



### UNITED SHOE MACHINERY CORP.

BOSTON, MASSACHUSETTS

#### Branches

Auburn, 87 Main  
Brockton, Mass., 93 Centre  
Cincinnati, 708 Broadway  
Chicago, 18 South Market  
Haverhill, Mass., 145 Essex  
Johnson City, N. Y., 276 Main  
Lynn, Mass., 306 Broad

Marlboro, Mass., 11 Florence  
Milwaukee, 256 Fourth  
New Orleans, 216 Chartres  
New York, 37 Warren  
Philadelphia, 221 North 13th  
Rochester, N. Y., 130 Mill  
St. Louis, 1423 Olive  
San Francisco, 859 Mission

## RUBBERIZED FABRICS

Archer Strauss Rubber Company  
Framingham, Mass.

Established 1890

Incorporated 1919

## The Kuhlke Machine Co.

Formerly Jones & Kuhlke

*Automobile Tire Molds  
and Cores*

GENERAL MACHINE WORK

Cor. W. Exchange & Water Sts. AKRON, OHIO

## THE VULCANIZED RUBBER CO.

INCORPORATED

Manufacturers of

Hard Rubber Goods  
of every description

251 FOURTH AVENUE

NEW YORK

## THE H. O. CANFIELD CO.

MANUFACTURE

Moulded Specialties, Plumbers' Rubber Goods,  
Valves, Gaskets; Hose Washers; and Cut  
Washers of all kinds.

*Write for prices and samples*

Office and Works - - - - - Bridgeport, Ct.

## RUBBER BUYERS' DIRECTORY — Raw Materials and Supplies.

<b>Alba Whiting.</b>	<b>Antimony—Sulphurets of—Continued.</b>	<b>Baralata.</b>	<b>Tyson Bros., Inc., Carteret, N. J.</b>
Harshaw, Fuller & Goodwin Co., The Cleveland, Ohio.	Naugatuck Chemical Co., Naugatuck, Conn.	Astlett & Co., H. A., New York.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.
Koessler & Hasslacher Chemical Co., New York.	Rare Metal Products Co., Belleville, N. J.	Chapman, E. L., New York.	Black Hypo.
Whittaker, Clark & Daniels, Inc., New York.	Hoeseler & Hasslacher Chemical Co., New York.	Dunbar, J. Frank, Co., Inc., New York.	Bullock, E. L., & Sons, Inc., New York.
Wishnick-Tumpeer Chemical Co., Chicago, Ill.	Rubber Service Laboratories, The, Akron, Ohio.	Hardy, S. S., Co., New York City.	Butcher, L. H., Co., Inc., New York.
 <b>Aluminum Flake.</b>	Schoell, William H., New York.	Jacoby, Ernest, Boston, Mass.	Harshaw, Fuller & Goodwin Co., The Cleveland, Ohio.
Aluminum Flake Co., Barberton, Ohio.	Type & King, Ltd., Mitcham, England.	 <b>Barium Dust.</b>	Schoel, William H., New York.
Schoell, William H., New York.	Tyson Bros., Inc., Woodbridge, N. J.	Vanderbilt, B. T., Co., New York.	Type & King, London, England.
 <b>Aniline</b>	Wishnick-Tumpeer Chemical Co., Chicago, Ill.	 <b>Barium Sulphate—See Barytes</b>	Wishnick-Tumpeer Chemical Co., Chicago, Ill.
Bullock, E. L., & Sons, Inc., New York.	 <b>Artificial Rubber.</b>	 <b>Barium Sulphate Precipitated—See Blanc Fixe</b>	 <b>Blanc Fixe.</b>
Grasselli Chemical Co., New York.	Ashley, T. C., & Co., Boston, Mass.	Bullock, E. L., & Sons, Inc., New York.	Bullock, E. L., & Sons, Inc., New York.
Grasselli Dyestuff Corp., New York, N. Y.	Carter Roll Mfr. Co., New York.	Butcher, L. H., Co., Inc., New York.	Butcher, L. H., Co., Inc., New York.
Innis, Speden & Co., Inc., New York, N. Y.	Schoell, William H., New York.	Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.	Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
National Aniline & Chemical Co., New York.	Stamford Rubber Supply Co., Stamford, Conn.	Innis, Speden & Co., Inc., New York City.	Innis, Speden & Co., Inc., New York City.
Naugatuck Chemical Co., Naugatuck, Conn.	Type & King, London, England.	Osborn, C. J., Co., New York.	Vanderbilt, B. T., Co., New York.
Rubber Service Laboratories Co., Inc. The, Akron, Ohio.	Tyson Bros., Inc., Woodbridge, N. J.	Hoeseler & Hasslacher Chemical Co., New York.	Waldo, E. M., & F., Inc., New York.
Schoell, William H., New York.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.	Schoell, William H., New York.	Whittaker, Clark & Daniels, Inc., New York.
Wishnick-Tumpeer Chemical Co., Chicago, Ill.	 <b>Asbestine.</b>	Thompson, Weinman & Co., Inc., New York.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.
 <b>Antimony, Sulphurets of.</b>	Bullock, E. L., & Sons, Inc., New York.	Tyson Bros., Inc., Woodbridge, N. J.	 <b>Bolted Lime.</b>
Golden and Crimson.	Butcher, L. H., Co., Inc., New York.	Vanderbilt, B. T., Co., New York.	Bullock, E. L., & Sons, Inc., New York.
Atlas Chemical Co., Waltham, Mass.	Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.	Waldo, E. M., & F., Inc., New York.	Butcher, L. H., Co., Inc., New York.
Bullock, E. L., & Sons, Inc., New York.	Innis, Speden & Co., Inc., New York City.	Whittaker, Clark & Daniels, Inc., New York.	Whittaker, Clark & Daniels, Inc., New York.
Butcher, L. H., Co., Inc., New York.	International Pulp Co., New York.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.	Schoell, William H., New York.	 <b>Basofor.</b>	 <b>Boxes—Packing</b>
Innis, Speden & Co., Inc., New York City.	Whittaker, Clark & Daniels, Inc., New York.	Waldo, E. M., & F., Inc., New York.	Mid-West Box Co., Chicago, Ill.
Atlas Chemical Co., Waltham, Mass.	Williams, C. K., & Co., Easton, Pa.	Bullock, E. L., & Sons, Inc., New York.	 <b>Cadmium Yellow.</b>
Bullock, E. L., & Sons, Inc., New York.	Wishnick-Tumpeer Chemical Co., Chicago, Ill.	Cabot, Samuel, Boston, Mass.	Bullock, E. L., & Sons, Inc., New York.
Butcher, L. H., Co., Inc., New York.	 <i>For Complete Addresses See Advertisements—Index Page 110</i>	Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.	Butcher, L. H., Co., Inc., New York.
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.		Schoell, William H., New York.	Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.
Innis, Speden & Co., Inc., New York City.			Innis, Speden & Co., Inc., New York City.

For Complete Addresses See Advertisements—Index Page 110

#### QUALITY SEALS



**GOLDEN  
CRIMSON  
VERMILION**

TYPKE & KING'S

# ANTIMONIES

(See Page 37)

ORIGINAL  
STANDARDS  
UNEXCELLED

WE ARE EXCLUSIVE U. S. AGENTS CARRYING

## NEW YORK STOCKS

LOOK FOR THE SEAL—NOT GENUINE WITHOUT IT

Also

## RED OXIDES

ENGLISH AND DOMESTIC

pure, bright, fine and uniform in all shades to meet any specifications



**LOS ANGELES  
SAN FRANCISCO**

Established at San Francisco 1896

## L. H. BUTCHER COMPANY, Inc.

Established at San Francisco 1898  
Office and Warehouse  
**51-255 Front St., New York**  
Phone 6732 Beckman

**SEATTLE  
PORTLAND**



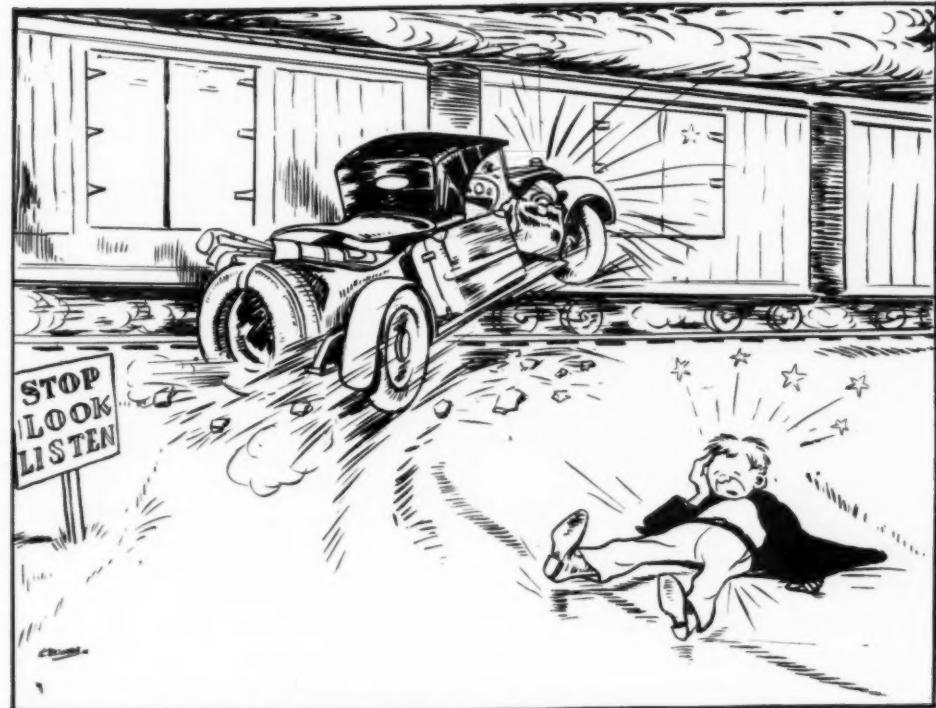
M. J.  
Co., Chi-  
cago, Ill.  
New York  
New York  
Co., The  
New York  
Co., Chi-  
cago, Ill.

New York  
New York  
Co., Cleve-  
land, Ohio  
New York  
New York  
Co., The  
New York  
Co., Chi-  
cago, Ill.

New York  
New York  
Co., New  
Co., Chi-  
cago, Ill.

New York  
New York  
Co., The  
New York  
Co., Chi-  
cago, Ill.

EE  
ON S  
IT



## ALMOST MADE IT!

The reckless driver eagerly seizes every possible chance to save a second. His eternal hope is that the race for a crossing will not be a tie.

Often he makes the grade—but one smash and he's cured, usually.

There are reckless compounding ingredients, too. Sometimes they approach the rubber mix with just a hope that somehow or other they'll come out right. And sometimes they do. When they

don't, the rubber compounder is cured, always.

There is nothing careless about Robertson Mineral Rubber (RMR). It saves seconds—minutes—HOURS in many cases, for it makes an easier and faster-working mixture. But the outstanding fact about RMR is that it goes into your mill with a sure confidence in its ability to exactly meet your specifications.

A trial order will meet your expectations.

### H. H. ROBERTSON COMPANY

Pittsburgh, Pa.

Factories: Ambridge, Pa.;  
Sarnia, Ont.

Branch Offices: In all principal  
cities in the United States.

For Europe and Australia:  
Sales Agents, Beahan &  
Sainsbury, 4 Mincing Lane,  
London, E. C., 3, England.

For Canada: H. H. Robertson  
Co., Ltd., Sarnia. General  
Sales Agents for Canada,  
Garnet Lea, 289-291 Sumach  
St., Toronto, Ont., Canada.

# ROBERTSON MINERAL RUBBER



## RUBBER BUYERS' DIRECTORY — Raw Materials and Supplies.

## Cadmium Yellow—Continued.

Roessler & Hasslacher Chemical Co., New York.  
Waldo, E. M., & F., Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Carbon Bisulphide and Tetrachloride.

Bullock, E. L., & Sons, Inc., New York.  
Dow Chemical Co., The, Midland, Mich.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Innis, Speden & Co., Inc., New York City.  
Schoel, William H., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Carbon Black.

Binney & Smith Co., New York.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Cabot, Godfrey L., Boston, Mass.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Huber, J. M., Inc., New York.  
Innis, Speden & Co., Inc., New York City.  
Osborn, C. J., Co., New York.  
Roessler & Hasslacher Chemical Co., New York.  
School, William H., New York.  
Seaver & Co., Boston, Mass.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Catalpo

Moore & Munger, New York.

## Caustic Soda.

Bullock, E. L., & Sons, Inc., New York.  
Dow Chemical Co., The, Midland, Mich.  
Grasselli Chemical Co., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Innis, Speden & Co., Inc., New York City.  
Schoel, William H., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Cement (Rubber).

Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.  
Easex Rubber Co., Trenton, N. J.  
Hale, Alfred, Rubber Co., Boston, Mass.  
New York Belting & Packing Co., N. Y.  
United States Rubber Co., New York.

## Chemicals and Ingredients.

Asbley, T. C., & Co., Boston, Mass.  
Binney & Smith Co., New York.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Grasselli Chemical Co., New York.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Innis, Speden & Co., Inc., New York City.  
National Aniline & Chemical Co., New York.  
Osborn, C. J., Co., New York.  
Roessler & Hasslacher Chemical Co., New York.  
Tyson Bros., Inc., Woodbridge, N. J.  
Vanderbilt, R. T., Co., New York, N. Y.  
Waldo, E. M., & F., Inc., New York.  
Westminster Chemical Co., The, Chicago, Ill.  
Westmoreland Chemical & Color Co., Philadelphia, Pa.  
Whittaker, Clark & Daniels, Inc., New York.  
Williams, C. E., & Co., Easton, Pa.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Clays.

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Innis, Speden & Co., Inc., New York City.  
Roessler & Hasslacher Chemical Co., New York.  
Rubber Service Laboratories, The, Akron, Ohio.  
Schoel, William H., New York, N. Y.  
Taintor Co., The, New York.  
Vanderbilt, R. T., Co., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Williams & Co., C. K., Easton, Pa.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Colors.

Binney & Smith Co., New York.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Grasselli Chemical Co., New York.  
Grasselli Dyestuff Corp., New York, N. Y.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Huber, J. M., Inc., New York.  
Innis, Speden & Co., Inc., New York City.  
McNulty, Joseph A., New York.  
National Aniline & Chemical Co., New York.  
Osborn, C. J., Co., New York.  
Roessler & Hasslacher Chemical Co., New York.  
Rubber Service Laboratories, The, Akron, Ohio.  
Schoel, William H., New York.  
Type & King, London, England.  
Tyson Bros., Inc., Woodbridge, N. J.  
Waldo, E. M., & F., Inc., New York.  
Westminster Chemical Co., The, Chicago, Ill.  
Westmoreland Chem. & Color Co., Philadelphia, Pa.

## Colors—Continued.

Whittaker, Clark & Daniels, Inc., New York.  
Williams, C. K., & Co., Easton, Pa.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Colors—Balloon.

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Grasselli Chemical Co., New York.  
National Aniline & Chemical Co., New York.

## Cotton Flock.

Claremont Waste Mfg. Co., Claremont, N. H.

## Cotton Goods.

Ducks and Drills.  
Adams, H. J., Co., The, Akron, Ohio.  
Callaway Mills, Inc., New York.  
Curran & Barry, New York.  
Lane, J. H., & Co., New York and Chicago.  
Lawrence & Co., New York.

## Canaburgs.

Adams, H. J., Co., The, Akron, Ohio.  
Callaway Mills, Inc., New York.  
Curran & Barry, New York.  
Lane, J. H., & Co., New York and Chicago.

## Sheetings.

Adams, H. J., Co., The, Akron, Ohio.  
Callaway Mills, Inc., New York.  
Lane, J. H., & Co., New York and Chicago.

## Stockinettes.

United States Knitting Co., Pawtucket, R. I.

## Tire Fabrics.

Adams, H. J., Co., The, Akron, Ohio.  
Bob Mfg. Co., Macot, Ga.  
Brighton Mills, Passaic, N. J.

For Complete Addresses See Advertisements—Index Page 110

# Baird Rubber & Trading Co.

233 BROADWAY, NEW YORK

Telephone, Whitehall 6890

Cable Address: CHAUNBAIR, NEW YORK

# CRUDE RUBBER



## OHMLAC KAPAK

(Refined Elaterite)

For The Rubber Trade

The finest quality of Hydrocarbon Compounds made. Write us today about your requirements.

Ohmlac Paint & Refining Co.

Refinery and Manufacturing Plant: Clearing, Ill.

General Offices—Marquette Building, Chicago

## BROOKLYN BRAND

## VELVET SULPHUR

Guaranteed 100 Pure and Free  
from grit for

## RUBBER MANUFACTURERS

Also—Superfine Ventilated Commercial Flour Sulphur 95%, passes  
through a 200 mesh sieve.

## BATTELLE & RENWICK

Established 1840

80 Maiden Lane, New York, N. Y.

**The  
Schwarzwaelder Company**

HARRY M. DANNENBAUM, Pres.

**RUBBERIZED FABRICS**

*"Weathers Any Weather"*

1017-21 Wood St.

Phila., Pa.

3630 Richmond St.



**"PIONEER"**  
**M. R.**

*"The Original M. R. Hydrocarbon"*

We are producers of highest quality asphalt specialties. M. R. is our principal product and receives our most careful attention. A grade made to meet any specification.

STOCKS AT

Chicago—Illinois

Wishnick-Tumpeer Chemical Co.

Trenton, N. J.

Cleveland, Ohio

Wishnick-Tumpeer Chemical Co.

**THE PIONEER ASPHALT CO.**  
Lawrenceville, Ill.

**COTTON FLOCKS**

Guaranteed Free From  
Clay, Talc, Chalk or Any Other  
Foreign Materials

For Manufacturers of  
HEELS, SOLES, TILING AND OTHER MECHANICAL  
RUBBER GOODS

*Liberal Working Samples Supplied*

**CLAREMONT WASTE MFG. CO.**  
CLAREMONT, DEPT. I NEW HAMPSHIRE

**The Atlas Chemical Co.**

WALTHAM, MASS.

MANUFACTURERS OF

**ATLAS**  
**SULPHURET OF ANTIMONY**  
**FOR THE RUBBER TRADE**  
SINCE 1880

**RUBBER CLOTHING**

COATED GEM DUCK and SHOE CLOTH

FRiction TAPE  
AND  
SPLICING COMPOUNDS

**CLIFTON MANUFACTURING CO.**  
65 Brookside Ave. BOSTON, MASS.

**UNITED STATES KNITTING CO.**

Pawtucket, R. I.

*since 1888 mfrs. of*

**STOCKINET**  
and fine worsted  
**JERSEY CLOTH**

for the rubber shoe trade.

Also

Special Stockinet Fabrics  
for the general rubber trades

Western Rep.—A. L. PARDEE  
512 Ohio Bldg., Akron, Ohio.

*Canadian and Export Trade served by*  
**CANADIAN U.S. KNITTING CO., Ltd.**  
St. Hyacinthe, P. Q., Canada

## RUBBER BUYERS' DIRECTORY — Raw Materials and Supplies.

## Cotton Goods—Continued.

Tire Fabrics—Continued.  
 Cabarrus Cotton Mills, Kannapolis, N. C.  
 Caldwell, R. J., Co., Inc., New York.  
 Caldwell, R. J., Ltd., of Oshawa, Ontario, Canada.  
 Callaway Mills, Inc., New York.  
 Lane, J. H., & Co., New York and Chicago.  
 Lawrence & Co., New York.  
 Salmon Falls Mfg. Co., Boston, Mass.  
 Taylor, Armitage & Eagles, Inc., New York.

## Tire Tape.

Adams, H. J. Co., The, Akron, Ohio.

## Crêpe Soling.

Buckleton & Company, Limited, Liverpool, England.  
 Hankin, Geo., & Co., London, England.  
 Henderson, H. H., Inc., New York.  
 Jacoby, Ernest, Boston, Mass.

## Crude Rubber Brokers.

Buckleton & Company, Limited, Liverpool, England.  
 Chipman, R. L., New York.  
 Dunbar, F. W., & Co., New York.  
 Dunbar, J. Frank, Co., Inc., New York.  
 Estates Crude Rubber Corp., New York.  
 Hardy, Roger S., New York.  
 Henderson, H. H., Inc., New York.  
 Jacoby, Ernest, Boston, Mass.

## Crude Rubber—Importers and Exporters.

Araujo, J. G., Manaos, Brazil, S. A.  
 Astlett, H. A., & Co., New York.  
 Baird Rubber & Trading Co., New York.  
 Chalfin, Joseph, & Co., Inc., New York.  
 Hankin, Geo., & Co., London, England.  
 Hirsch, Adolph, & Co., New York.  
 Muehlein, H., & Co., Inc., New York.  
 Wilson, Charles T., Co., Inc., New York.

## Crude Rubber—Latex.

Buckleton & Company, Ltd., Liverpool, England.  
 Hankin, Geo., & Co., London, England.  
 Byles, W. E., New York, Agent.  
 Hardy, R. S., Co., New York.  
 Jacoby, Ernest, Boston, Mass.  
 Vanderbilt, R. T., New York, N. Y.

## Crude Rubber—Washed and Dried.

Acashnet Process Co., New Bedford, Mass.  
 Araujo, J. G., Manaos, Brazil, S. A.  
 Continental Rubber Co., New York.

## Diatomite.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Whittaker, Clark & Daniels, Inc., New York.

## Fillers.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Innis, Speden & Co., Inc., New York.  
 Mackay Products Co., Cleveland, Ohio.  
 Thompson, Weisman & Co., Inc., New York.  
 Vanderbilt, R. T., New York, N. Y.  
 Whittaker, Clark & Daniels, Inc., New York.

Fossil Flour—Infusorial Earth.  
 Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Scheel, William H., New York.  
 Whittaker, Clark & Daniels, Inc., New York.

## Gilsomite.

Barber Asphalt Co., The, Philadelphia, Pa.  
 Bullock, E. L., & Sons, Inc., New York.  
 Scheel, William H., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Graphite.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Innis, Speden & Co., Inc., New York.  
 Whittaker, Clark & Daniels, Inc., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Green Oxide of Chromium.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Graselli Chemical Co., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York.  
 Roessler & Hasslacher Chemical Co., New York.  
 Scheel, William H., New York.  
 Tyson Bros., Inc., Woodbridge, N. J.  
 Waldo, E. M., & F., Inc., New York.  
 Williams, C. K., & Co., Easton, Pa.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Guayule Rubber.

Continental Rubber Co., New York.  
 Wilson, Charles T., Co., Inc., New York.

## Gutta-Percha.

Astlett, H. A., & Co., New York.  
 Baird Rubber & Trading Co., New York.  
 Chipman, R. L., New York.  
 Dunbar, J. Frank, Co., Inc., New York.  
 Hankin, Geo., & Co., London, England.  
 Hardy, R. S., Co., New York City.  
 Jacoby, Ernest, Boston, Mass.

## Hard Rubber Dust.

Defiance Rubber Co., The, Defiance, Ohio.  
 Muehlein, H., & Co., Inc., New York.  
 Somerset Rubber Reclaiming Works, New Brunswick, N. J.

## Hexamethylene Tetramine.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Graselli Chemical Co., New York.  
 Roessler & Hasslacher Chemical Co., The, New York.

## Hydro-Carbon Products.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York City.  
 Ohmec Paint & Refining Co., Chicago Ill.  
 Robertaon, H. H., Co., Pittsburgh, Pa.  
 Scheel, William H., New York.  
 Vanderbilt, R. T., Co., New York.  
 Whittaker, Clark & Daniels, Inc., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

Infusorial Earth—See Fossil Flour.

## Iron Oxide—See Red Oxide

## Lampblack.

Binney & Smith Co., New York.  
 Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Butter, Samuel, Boston, Mass.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York City.  
 Osborne, C. J., Co., New York.  
 Tyson Bros., Inc., Woodbridge, N. J.  
 Waldo, E. M., & F., Inc., New York.  
 Williams, C. K., & Co., Easton, Pa.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Lead—Blue.

Lead—Sublimed White.  
 Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Roessler & Hasslacher Chemical Co., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Lime Flour.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Scheel, William H., New York.  
 Whittaker, Clark & Daniels, Inc., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Liners, Treated.

Cleveland Liner & Mfg. Co., The, Cleveland, Ohio.

## Litharge.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York.  
 Roessler & Hasslacher Chemical Co., New York.  
 Scheel, William H., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Lithopone.

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Graselli Chemical Co., New York.  
 Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York.  
 New Jersey Zinc Sales Co., New York.  
 Osborn, C. J., Co., New York.  
 Scheel, William H., New York.  
 Whittaker, Clark & Daniels, Inc., N. Y.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Magnesia Carbonate

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
 Innis, Speden & Co., Inc., New York.  
 National Aniline & Chemical Co., New York.  
 Roessler & Hasslacher Chemical Co., New York.  
 Scheel, William H., New York.  
 Whittaker, Clark & Daniels, Inc., N. Y.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Magnesia Oxide (Calcined)

Bullock, E. L., & Sons, Inc., New York.  
 Butcher, L. H., Co., Inc., New York.  
 Graselli Chemical Co., New York.  
 Innis, Speden & Co., Inc., New York.  
 Roessler & Hasslacher Chemical Co., New York.  
 Scheel, William H., New York.  
 Whittaker, Clark & Daniels, Inc., New York.  
 Wishnick-Tumpeir Chemical Co., Chicago, Ill.

We Manufacture a Variety of Shades of

# RED OXIDE OF IRON

particularly adapted for  
RUBBER MANUFACTURERS' USE

Extremely strong in coloring power and ground impalpably fine.  
 Also various grades of Talc, Soapstone and Asbestine. Write  
 us for samples and prices.

**C. K. WILLIAMS & CO.**

Pacific Coast Representative, Marshall Dill

**Easton, Pa.**

216 Pine St., San Francisco, Calif.



**H. A. ASTLETT & CO.**  
 64 WATER STREET - - - - -  
 NEW YORK

*Importers of*  
**CRUDE RUBBER**

**T. C. ASHLEY & CO.**  
 683 Atlantic Ave. - - - - -  
 Boston, Mass.  
 MANUFACTURERS OF  
**RUBBER SUBSTITUTES**  
 Represented by  
 H. N. RICHARDS CO.  
 Trenton, N. J.

**TYSON BROS. INC.**

WOODBRIDGE N. J.

MANUFACTURERS

The best grades of Rubber Substitutes and  
 Chemicals for all branches of the  
 Rubber Trade

Western Representative  
 J. A. KENDALL  
 524 Second National Bldg., Akron, Ohio

STOCK CARRIED IN  
 AKRON

**MOLDRITE**

*The Original Product*

The Perfect Rubber Softener

Eliminates Priming of Molds

**MACKEY PRODUCTS COMPANY**  
 306 COMMONWEALTH BUILDING - - - - -  
 CLEVELAND, OHIO

## RUBBER BUYERS' DIRECTORY —Raw Materials and Supplies.

**Marking and Stencil Ink.**  
Binney & Smith Co., New York, N. Y.

**Mica.**

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
School, William H., New York.  
Whittaker, Clark & Daniels, Inc., N. Y.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Mineral Rubber.**

Barber Asphalt Co., Philadelphia, Pa.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York.  
Olinmac Paint & Refining Co., Chicago, Ill.  
Pioneer Asphalt Co., Lawrenceville, Ill.  
Robertson, H. H., Co., Pittsburgh, Pa.  
School, William H., New York.  
Synthetic Products Co., Cleveland, Ohio.  
Vanderbilt, R. T., Co., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Oils—Palm.**

Butcher, L. H., Co., Inc., New York.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Oils—Tar, Pine, Creosote, Rosin, Turpentine.**

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Oils—Vegetable.**

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Petrolatum.**

Bullock, E. L., & Sons, Inc., New York.  
Vanderbilt, R. T., Co., New York.

**Pigments.**

Aluminum Flake Co., Barberton, Ohio.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York City.

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Roessler & Hasslacher Chemical Co., New York.  
Scheel, William H., New York.  
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Whittaker, Clark & Daniels, Inc., New York.  
Williams, C. K., & Co., Easton, Pa.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Pine Tar.**

Bullock, E. L., & Sons, Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Pitch.**

Bullock, E. L., & Sons, Inc., New York.  
Rubber Service Laboratories, The, Akron, Ohio.  
Scheel, William H., New York.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Precipitated Chalk.**

Bullock, E. L., & Sons, Inc., New York.  
Innis, Speiden & Co., Inc., New York City.

Roessler & Hasslacher Chemical Co., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Pumice Stone.**

Bullock, E. L., & Sons, Inc., New York.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**"Quaker" Whiting.**

Vanderbilt, R. T., Co., New York.  
Whittaker, Clark & Daniels, Inc., New York.

**Reclaimed Rubber.**

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Baird Rubber & Trading Co., New York  
(Agent).  
Clapp, E. H., Rubber Co., Boston, Mass.  
Dudbear, J. Frank, Co., Inc., New York.  
McGroarty, Philip, Trenton, N. J. (Agent).  
Nearpoint Rubber Co., Trenton, N. J.  
New Jersey Rub. Co., Lambertville, N. J.  
Pequannock Rubber Co., Butler, N. J.  
Philadelphia Rubber Works, Philadelphia,  
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Huber, J. M., Inc., New York.  
Innis, Speiden & Co., Inc., New York City.

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Osborn, C. J., Co., New York.  
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Scheel, William H., New York.  
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Whittaker, Clark & Daniels, Inc., New York.  
Williams, C. K., & Co., Easton, Pa.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Resin.**

Bullock, E. L., & Sons, Inc., New York.  
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Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Rosin.**

Bullock, E. L., & Sons, Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
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Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Scheel, William H., New York.  
Whittaker, Clark & Daniels, Inc., New York.

**Rubber Flux.**

Synthetic Products Co., Cleveland, Ohio.  
Vanderbilt, R. T., Co., New York, N. Y.

**Rubber Makers' White.**

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Butcher, L. H., Co., Inc., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
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Ashley, T. C., & Co., Boston, Mass.  
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Stamford Rubber Supply Co., Stamford, Conn.  
Type & King, London, England.  
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Birkenstock, S., & Sons, Chicago, Ill.  
Chalfin, Joseph, & Co., Inc., New York.  
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Muhslein, H., & Co., Inc., New York.  
Norton, M., & Co., Medford, Mass.  
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Roessler & Hasslacher Chemical Co., New York.  
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**Slate Flour.**

Butcher, L. H., Co., Inc., New York.

**Sapstone.**

Binney & Smith Co., New York.  
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Williams, C. K., & Co., Easton, Pa.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

**Solvents****Naphtha.**

Hurtol Products Corp., Newark, N. J.  
Wishnick-Tumpeen Chemical Co., Chicago, Ill.

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Battelle & Renwick, New York.  
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Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York City.  
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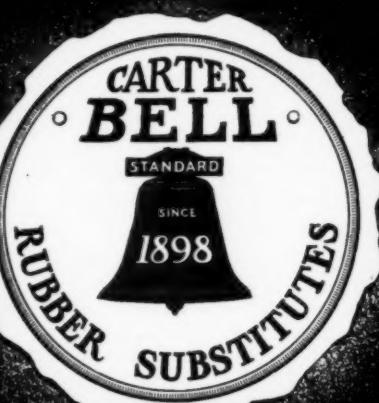
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Carter Bell Mfg. Co., New York.  
Dow Chemical Co., The Midland, Mich.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York City.  
School, William H., New York.  
Stamford Rubber Supply Co., Stamford, Conn.  
Tyson Bros., Inc., Woodbridge, N. J.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

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Binney & Smith Co., New York.  
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Waldo, E. M., & F., Inc., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Williams, C. K., & Co., Boston, Pa.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Thiocarbonanilid.

Bullock, E. L., & Sons, Inc., New York.  
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Grasselli Chemical Co., New York.  
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## Tripoli Flour.

Bullock, E. L., & Sons, Inc., New York.  
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School, William H., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Ultramarine Blue

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Gibraltar Rubber Corp., West New York, N. J.

## Wax

Bullock, E. L., & Sons, Inc., New York.  
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Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York City.  
School, William H., New York.  
Tidewater Chemical Co., Inc., New York.  
Vanderbilt, R. T., Co., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## White and Blue Lead, Sublimed.

Butcher, L. H., Co., Inc., New York.  
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Besseler & Hasslacher Chemical Co., New York.  
Tidewater Chemical Co., Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Whiting.

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
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Whittaker, Clark & Daniels, Inc., New York.  
Weeping Water S. Co., The, Weeping Water, Neb.  
Westminster Chemical Co., The, Chicago, Ill.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Wood Flour.

Bullock, E. L., & Sons, Inc., New York.  
Tidewater Chemical Co., Inc., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Woolgrease (Lanolin)

Butcher, L. H., Co., Inc., New York.

## Zinc Oxide of.

American Zinc Sales Co., New York.  
Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Grasselli Chemical Co., New York.  
Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.  
Innis, Speiden & Co., Inc., New York City.  
National Aniline & Chemical Co., New York.  
New Jersey Zinc Sales Co., New York.  
Osborn, C. J., Co., New York.  
Besseler & Hasslacher Chemical Co., New York.  
School, William H., New York.  
Tidewater Chemical Co., Inc., New York.  
Whittaker, Clark & Daniels, Inc., New York.  
Wishnick-Tumpeir Chemical Co., Chicago, Ill.

## Zinc Substitute.

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Scheel, William H., New York.  
Tidewater Chemical Co., Inc., New York.  
Zinc Sulphide.

Bullock, E. L., & Sons, Inc., New York.  
Butcher, L. H., Co., Inc., New York.  
Harshaw, Fuller & Goodwin Co., The, Cleveland, Ohio.

## MISCELLANEOUS

## Banking.

International Acceptance Bank, Inc., New York.

## Consulting Rubber Chemists.

Maywald, Dr. F. J., Belleville, N. J.  
Tuttle, John B., New York.  
Weber, Dr. Lethar E., Boston, Mass.

## Consulting Rubber Engineer.

Dunbar, Wilmer, Greensburg, Pa.

## Consulting Rubber Technologists.

Norris, Webster, Hempstead, N. Y.  
Maywald, F. J., Dr., Belleville, N. J.  
Tuttle, John B., New York.

## Rubber Plant Engineers

Consulting Co., The, Cincinnati, Ohio.  
Rubber Engineering Co., Akron, Ohio.

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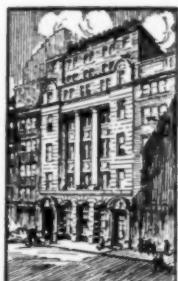
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